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DIESEL RAILWAY TRACTION SUPPLEMENT

The July issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1*s.*

NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers in Great Britain cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions. Orders for overseas destinations can now be accepted

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Finance of State Railways

THE nationalisation of our major industries, including the railways, is recognised as being a matter of major divergence of policy in the present election. Mr. Oliver Lyttelton, President of the Board of Trade and Minister of Production, early this week referred to the financial results which have attended the nationalisation of railways in various parts of the world. He quoted Mr. J. A. Lyons, Prime Minister of Australia in 1932 as having said that there were 450,000 income-tax payers in Australia and that their average contribution towards railway deficits was more than £23 each. In 1929-30 the total income-tax collected by the State Government was more than £15,000,000, of which railway deficits required 53 per cent. In France a report on the condition of the French State railways issued by the Minister of Public Works showed that by 1935 the accumulated deficits since 1921 amounted to about £346,000,000. The latest available figures for the Italian State railways, those of 1938, showed a deficit of 191,459,000 lire.

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A Straw in the Wind

Mr. C. D. Notley in a letter published in *The Times* reproduced on another page, has protested against "the shocking waste of paper" by the four main-line railway companies by the exhibition of the poster showing a Union Jack, a railway train, and the phrase "In War and Peace—we serve." Mr. Notley comments that service is the railways' natural and only function and that they could not exist if they did not serve. The posters to which Mr. Notley takes exception come out of the quota of paper allocated the railways for such purposes, and fall within the category of "prestige announcements." At the present time, under Government control, it is perhaps not easy to see in what other form of publicity they can indulge. Nevertheless, the letter from Mr. Notley is valuable as a straw which shows which way is blowing the wind of public opinion. There can be no doubt that the great mass of public opinion is antagonistic to the railway companies at the present time for reasons—such as overcrowding of passenger trains, curtailment of facilities, and so forth—which are quite beyond the control of the companies. Nevertheless, this loss of public goodwill is a very serious matter, the effects of which may be felt increasingly by the railways as conditions tend to become less abnormal. We have drawn attention to the need to offset this trend on a number of previous occasions. It is now becoming increasingly urgent.

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Home Railway Interim Dividends

As briefly recorded in our last week's issue, it is expected that the interim dividend announcements by the L.M.S.R., L.N.E.R., and Southern Railway will be made known on July 26, and that the G.W.R. statement will be forthcoming the next day. A year ago G.W.R. consolidated ordinary received 2 per cent. and Southern preferred ordinary 2½ per cent. The 4 per cent. second preference of the L.N.E.R. was the most junior stock of that company to receive a payment, which was 1 per cent. No distribution was made on L.M.S.R. ordinary, which at the end of last year received 2½ per cent. The fixed rental agreement, under which he railways are working, gives little scope for variations in dividends, for any changes in net revenue can arise only from the working of ancillary businesses. The junior stocks of the Home railway companies provide yields far higher than those obtainable on any other class of security so well assured of earnings in the immediate future. Lack of confidence in the more long-term prospects of the lines is the main factor in the poor prices ruling for the stocks. Investors find little encouragement either in the constant, if unspecific, talk of nationalisation, or in the lack of guidance by the Government as to its transport plans.

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Commonwealth Air Transport Council

Lord Swinton, the Minister of Civil Aviation, has announced that a meeting of the Commonwealth Air Transport Council will be opened in London on July 9. The conference is expected to last about a week, and all Commonwealth countries constituting the Council will be sending delegations. Lord Swinton will preside, and the meetings will take place at the Ministry of Civil Aviation, Ariel House, Strand, W.C.2. It may be recalled that the Commonwealth Air Transport Council was established as a result of the Commonwealth conversations held in Montreal in December, 1944. The objects are to keep under review the progress and development of Commonwealth civil air communications; to serve as a medium for exchange of views and information between the Commonwealth countries on civil air transport matters; and to deal with any such matters as may be referred to the Council by its members. The provisional agenda for the forthcoming conference includes a review of progress and develop-

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ment of Commonwealth air communications; the provision of meteorological and radio facilities along the routes; general developments in international civil aviation; a review of the functions of the Commonwealth Air Transport Council and the composition and location of its secretariat; and a consideration of the proceedings of the Southern Africa Air Transport Conference, of a paper to be presented by New Zealand on Commonwealth co-operation in research and development, and of a meeting of the Sub-Commissions of International Committee on Air Navigation held in Paris in April and May last.

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Overseas Railway Traffics

Activity in most of the stocks of the British-owned railways in Argentina has been restricted of late, due largely to absence of demand, and the decision to extend the moratorium for the Buenos Ayres & Pacific group appears to have had little effect. Traffics of the four principal companies for the 51st week of the financial year are better except for a small decrease on the Buenos Ayres Western, and, as will be seen from the accompanying table, the figures for the nearly complete year are substantially in advance of those for the corresponding period a year ago. The Argentine North Eastern for the 51st week has an increase of £3,075 with an aggregate to date £149,875 higher, and the Entre Rios with its week's gain of £4,012 is £220,062 up in its gross receipts so far for the year. Central Uruguay gross takings continue to improve, and for the 51 weeks have reached a total of £1,815,886, showing an increase of £40,063.

	No. of week	Weekly traffics	Inc. or dec.	Aggregate traffic	Inc. or dec.
		£	£	£	£
Buenos Ayres & Pacific* ...	51st	124,125	+21,562	6,941,312	+1,124,624
Buenos Ayres Great Southern*	51st	184,438	+45,687	10,597,188	+1,185,875
Buenos Ayres Western* ...	51st	69,500	− 2,688	3,611,187	+ 539,062
Central Argentine*	51st	167,456	+ 7,156	9,190,771	+ 942,477
Canadian Pacific	24th	1,270,600	+57,400	29,097,200	− 14,000

* Pesos converted at 16 to £

Antofagasta traffics for the first 25 weeks of 1945 are £65,250 higher, but the Chairman stated at the recent annual meeting that expenses are considerably heavier.

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Australian Commonwealth Railways

The report on the operations of the Australian Commonwealth Railways for the year ended June 30, 1944, which we have received from Mr. G. A. Gahan, O.B.E., the Commissioner, shows that the results of working the entire system were below those attained in the record year 1943-43, but markedly superior to anything achieved before that date. Gross earnings in the year under review were £3,459,204, a decrease of £286,858 in comparison with the year 1942-43, and the total excess of earnings over working expenditure amounted to £1,038,641, against £1,675,270. Decreases in gross earnings were recorded on the Trans-Australian and the Central Australia Railways, but the North Australia Railway receipts were better, and the only constituent railway to show a loss was the Capital Territory line. Some comparative statistics for the two years are given in a table on another page. In the pre-war years, the Trans-Australian Railway was the most important section of the Commonwealth-owned system, with the Central Australia Railway next in order. The demands of war reversed this position, and in the year under review the North Australia and Central Australia Railways, linked by the North-South highway, formed one of the main channels for the transport of troops, equipment and war materials from the Southern and Eastern States to the northern operational areas. The Trans-Australian is still playing its part in the war effort, but its strategic position has relegated it to a relatively less important military rôle. The decrease in its earnings was largely due to a reduction in through goods traffic and to lower rates and fares for goods, mechanical transport and personnel of the Armed Forces.

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Railways in East Africa

During the war the railways throughout Africa carried greatly increased traffic in support of the war effort. Much of this moved over the lines of the Kenya & Uganda Railways & Harbours and the Tanganyika Government Railways. A map showing these lines and also the associated road and river services is given elsewhere in this issue. Both are extensive metre-gauge systems. There is 1,625 miles of the Kenya & Uganda Railways, exclusive of the 91 miles between Konza and Lake Magadi, which is worked by the Administration. The Tanganyika Government Railways have 1,376 miles of line. This system originally was built during the German régime and was taken over after the 1914-18 war. At one time there was talk of its return to German hands, but obviously any prospect of this is now so remote as to be negligible. It is more likely, indeed, that some arrangement might be made in the future to link the administrations of the Kenya & Uganda Railways and the Tanganyika Government Railways, or possibly even to merge them. In that event, the resulting system would be by far the most extensive in any of the Crown Colonies—a position which is held at present by the Nigerian Railway, which has 1,770 miles of 3 ft. 6 in. and 133 miles of 2 ft. 6 in. line.

* * * *

Track Inspection on the L.N.E.R.

Certain changes have been made recently in the system of assessing the condition of track on the L.N.E.R., and elsewhere in this issue some details appear of the method which is now in use. Broadly, the system adopted is the award of marks for the various details making up the track. These are incorporated in a track inspection report to the Chief Engineer's Department. An example of one of these reports is reproduced. These reports form the basis of summaries prepared yearly by the District Engineer and his assistant, the Chief Permanent Way Inspector of the district, and another selected individual. The results at the end of the year can then be compared by summarised figures or graphs as between inspectors and districts, with any sub-divisions required. Apart from the general view obtained, the results make it possible to ascertain readily individual cases of lengths of track which show wide variation from the desired standard, and although in present circumstances full advantages of the system cannot be derived, it should prove of considerable value when more normal conditions return.

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Complete Railway Electrification for Holland

The important decision to convert to electric traction the whole of the Dutch steam-operated railway system was taken by the Netherlands Government at the beginning of June, according to a report from The Hague. At the beginning of 1944, the entire Dutch railway system totalled 1,962 route miles, of which 328 miles (743 track miles) had been converted to electric traction in the years 1908 to 1940. They comprised the following routes:—Amsterdam-Rotterdam-Hook-of-Holland; Amsterdam-Utrecht-Eindhoven; Utrecht-Arnhem; Utrecht-The Hague; The Hague-Scheveningen; Rotterdam-Gouda; and associated lines. The system adopted was 1,500-volt direct current, with overhead contact wire. As we recorded in our June 22 issue (page 613), the train services in Holland were probably the best in Europe, even as late as the summer of last year.

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Railway Horses

The events of the past few years have shown in no uncertain way that the horse still holds its own in the field of railway collection-and-delivery work. Every year these animals, among the finest of their kind in the world, are responsible for the collection and delivery of some 9,319,000 tons of goods and 26,220,000 parcels. Motors and mechanical horses are playing an increasingly important part in this work, but long experience has proved that the horse and cart is still a very economical vehicle to employ on cartage work which involves short hauls with many stops. In wartime, with petrol and rubber in short supply, the horse-drawn vehicle has assumed an even greater importance. The British railways own 9,714 horses, and nearly all are employed on cartage work. The remainder are employed in wagon marshalling yards, drawing railway barges along canals and inland waterways, and on railway-owned farms. They are housed in 727 stables throughout the country. The annual consumption is 23,420 tons of hay, 19,890 tons of oats, 2,710 tons of bran, and 3,100 tons of straw. Shoeing costs £86,200 a year, and is performed mainly by railway blacksmiths who have their own forges at the larger depots. The expense of maintaining horses is offset by the sale of manure, which provides the railways with an annual income of £41,350.

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Travel Across North America

In the Middle West region of the United States there exists what, from the passenger point of view, is an operational barrier more effective than a frontier between two countries, and as complete as a break of gauge. Although it is possible to travel in through trains, sleeping cars, and coaches from New York, Philadelphia, Washington and other cities of the Eastern States to Florida, New Orleans, and other areas of the south and south-west, and also to make through journeys from north to south, and *vice versa*, as, for example, between Minneapolis and Houston, it is not possible to make a through transcontinental journey between New York or Washington and the Pacific coast. All such journeys involve a break in Chicago or St. Louis, and if in the former city, in addition to a wait of several hours, a change of station is generally required also. The same applies to practically all journeys between points east and west of Chicago and St. Louis. Recently Mr. C. E. Newton, President of the Chesapeake & Ohio Railway, has been urging the desirability of collaboration between the eastern and western lines to change this policy, as one means of meeting the coast-to-coast air competition which is likely to be so severely felt by the railways in the post-war years. As compensations for their increased travel

time, the railways would be able to offer considerably greater comfort, convenience, and dependability. In through running the U.S.A. is behind Canada, which has its through services daily by both the Canadian Pacific and Canadian National routes between the cities of Montreal and Toronto and the Pacific port of Vancouver.

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Improvements in Block Working

Elsewhere we publish a short contribution from a correspondent which deals with certain weaknesses, as he sees them, in our block telegraph working and suggests that it would be good policy to cover them by making some additions to that working where they do not as yet exist. The object is to eliminate, or at least very much reduce, the risk of mistake which now and again shows itself and finds expression in an accident or narrow avoidance of one. This is in fact raising the old and much-disputed question of ordinary block telegraph *versus* some form of lock-and-block, of greater or less degree of completeness, a question which has been much discussed,not only in this country but abroad. Although on some railways here there was at one time practically no inclination to consider any addition to the simple block telegraph, while others went far in the other direction, there has been a noticeable change since the end of the last war. Now it is the practice to apply some, at least, of the ideas put forward by our correspondent and secure a partial degree of mechanical security against the making of mistakes in block working. One of our main lines, in its latest apparatus, has met every condition set out in the contribution under review.

* * * *

The Value of Colour

The news that the first of the new 2-6-4 tank locomotives on the L.N.E.R. has been painted green prompts the hope that it may be possible to return in a relatively short time, not only to the standard colours of British rolling stock, but to external cleanliness also. Only the Great Western Railway has maintained its normal locomotive livery in wartime, at least on the principal express locomotive classes, and the sight of G.W.R. expresses headed by engines with their Great Western green finish set off by gleaming copper and brasswork has been a delight indeed as compared with the drab conditions obtaining elsewhere. The Southern Railway is to be congratulated on having been able to maintain the cleanliness of many of its locomotives and coaching vehicles almost unimpaired during wartime, and the painting of one of the newest "Merchant Navy" Pacifics in malachite green appears to foreshadow the reintroduction of this characteristic Southern colour, in place of wartime black. American experience during recent years has proved that bright locomotive colours and smart finish are a publicity asset of no mean value. Apart from this, however, the locomotive that is well finished and kept in a spick-and-span condition is likely to be taken more care of by its crew than the dirty and ill-kempt machine which appears to be "nobody's darling," and gets treated accordingly. In years gone by Great Britain set the fashion of the smart locomotive, and though the war has led to a painful decline in appearance generally, there is no reason why the propaganda value of colour and line should not be realised afresh, especially to foster the juvenile interest in the steam locomotive which has now reached so high a level.

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The Answer of Steam

While the Western railways of the United States, remote from the principal coalfields, and operating in some cases through arid country where locomotive water supply is a considerable problem, are turning more and more to diesel propulsion to solve their operating difficulties, some striking developments are taking place in the Eastern States towards the more efficient use of steam. As previously mentioned, the Pennsylvania Railroad, with its own facilities for locomotive building and its own locomotive testing-plant at Altoona, is turning out two entirely new non-articulated steam locomotive classes—50 4-4-4-4 passenger and 25 4-6-4-4 freight locomotives, to add to the experimental engines of each class already in service. A measure of modern efficiency is found in the fact that each 4-4-4-4 locomotive has a 45 per cent. greater tractive effort on starting than the existing "K4" Pacifics, but that the advantage rises to over 100 per cent. at speeds exceeding 55 m.p.h. In addition the Pennsylvania is to experiment with two distinct types of turbine locomotive, both of very great size and power. Now the Chesapeake & Ohio Railway, which is much concerned with coal haulage, announces its intention to build three locomotives of the 4-8-0 + 4-8-4 type, with uncoupled driving wheels, in which steam turbines will drive an electric power plant, and the electricity will be used for propulsion. This new type will be designed to develop 6,000 h.p., and to produce 4,000 kW. for traction purposes.

Antofagasta (Chili) & Bolivia Railway

THE system owned and operated by the Antofagasta (Chili) & Bolivia Railway Co. Ltd. links the Chilean ports of Antofagasta and Mejillones with La Paz (the capital of Bolivia) and the important Bolivian towns of Potosi, Oruro, and Cochabamba. From Antofagasta to La Paz the distance is 729 miles on the metre gauge. The company also owns waterworks and moles at Antofagasta and Mejillones, and as from July 1, 1919, has operated the Northern Section of the Chilean Longitudinal Railway, by means of which direct railway communication is established with Valparaiso and Santiago. The Aguas Blancas Railway (158 miles) is owned by the company, which also works the 417 miles of the Bolivia Railway Company. As indicated in the recent report, the gross receipts of the whole undertaking in the year 1944 were £20,240 less than in 1943, working expenses increased by £117,952, and the surplus on working showed a decrease of £138,192. Income received from Bolivia Railway bonds was £123,885, an improvement of £11,673, but the loss from the operation of that company's lines increased from £65,081 to £141,546; floods and slides caused considerable damage and the Oruro-Cochabamba line was virtually closed to traffic for about ten weeks. The accompanying table compares the financial position for the past two years:—

	1943	1944
	£	£
Passenger receipts	112,410	116,675
Goods and livestock receipts... ...	1,256,639	1,203,470
Gross receipts	1,539,311	1,519,071
Working expenditure	1,211,668	1,329,620
Net receipts	327,643	189,451
Other income	169,253	161,249
Debenture interest and other charges	390,767	344,206
Brought forward	271,727	377,856
Carried forward	377,856	384,350

Public goods traffic totalled 1,228,440 tons, a decrease of 115,346 tons, and the receipts therefrom were £53,169 lower. There were reductions in the tonnages of most items of traffic, with the exception of copper bars. Up traffics generally were well maintained except for fuel oil. Passengers numbered 628,404, an increase of 12,801. As to working expenses, the salaries and wages bill increased by some £96,000, and contributions under the various social laws, family allowances to workmen in Bolivia imposed by law in December last, involved further additional expenditure of over £33,000. In the fuel bill there was a reduction of some £16,000 due to lower cost of fuel oil and to the smaller volume of traffic handled. The operating ratio was 87·50 per cent. against 78·71 per cent. in 1943.

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The Rail Corrosion Problem

HITHERTO the problem of rail corrosion has found no completely satisfactory solution. Corrosion conditions are usually at their worst in damp tunnels used by steam-hauled trains, where the combination of moisture with sulphur from the locomotive exhaust produces acid corrosion of a particularly troublesome kind. Water-troughs, with the constant wetting and drying of the rails resulting from the intermittent use of the locomotive scoops, are also bad places for corrosion. The problem is made worse in each case by the difficulty of keeping the track at such locations up to the best maintenance standards, and in particular of keeping the joints well packed up; in consequence, corrosion fatigue tends to encourage cracking of the rails in the vicinity of the joints.

Innumerable remedies have been tried, but most of them have proved to be no more than palliatives, effective over a limited period. Welding the rails into continuous lengths reduces the number of joints, and the number of fatigue failures also, but does nothing to reduce the corrosion. As to the steel, the inclusion of copper has been found useless; indeed, some metallurgical authorities consider that in a high-carbon steel copper may accelerate the corrosion, as compared with the corrosion-restraining influence that it has in a mild steel. Chromium alone, or chromium in combination with copper, have been found equally ineffective. As to external protection, spraying with zinc or some other suitable metal may have some initial effect, but the constant vibration soon loosens the coating, and causes it to drop off. The best results have been obtained, probably, by the simple expedient of painting with red lead, and adding above that an additional protective of tar, or some other bituminous coating.

If external protection is to have any results that are at all permanent, however, it is essential that the coatings shall be

applied to a clean surface. In this connection, the worst difficulty in coating a rail effectively arises from the covering of mill scale, partial or complete, with which the rail leaves the rolls. This metallic covering is at first strongly adherent, but moisture is often present beneath it, and in the course of time vibration and rust below the scale cause the latter to flake off, together with any paint or other coating that may have been applied above it. At most rolling mills, a jet of steam or of water under pressure is applied to the hot rails at the last pass or two through the rolls, to loosen the mill-scale, and in some of the anti-corrosion rail experiments that have been made, the pressure of the jet has been considerably increased, so that the rails, after a final wire-brushing, may have a clean surface for painting.

An article in the February issue of our American contemporary *Railway Engineering & Maintenance* described how the Norfolk & Western Railway has made a new approach to this problem, which is regarded as sufficiently promising to have become part of the standard rail practice of this company. The preservative coating used for the rails is Texas No. 45 oil, which contains 45 per cent. of asphalt, and it is applied after the rails have been flame-cleaned with oxy-acetylene jets. It is in the flame-cleaning that the novelty lies, and the value of this treatment is that the steel surface is not merely cleaned, but is dehydrated also, and provision is thus made for a good bond between the oil coating and the rail. Most of the scale drops off after the flame-cleaning has taken place, and any that remains is so loosened that it can be removed easily with wire brushes. The flame-cleaning has been found more effective and cheaper than sand-blasting for the same purpose.

For the past three years all Norfolk & Western stocks of rails maintained at different points on the system for emergency use have been flame-cleaned and oiled in this way; and the practice now is extended to rails that are to be laid in tunnels or across the level crossings that are so numerous in the U.S.A. To carry out this work, a special mechanised plant has been assembled, mainly from second-hand materials, and has been installed at West Roanoke, Virginia. As most of the rails used on crossings have to be butt-welded from the standard 39-ft. into 78-ft. lengths, and as many of the tunnel rails are continuously welded into still larger lengths, the flame-cleaning and oiling plant has been laid down end-to-end with the butt-welding plant, at the leaving end of the latter; throughout the two plants, the rollers carrying the rails from unit to unit are at the same height, so that if necessary the cleaning and oiling may follow directly on the welding.

The flame-cleaning machine consists of four specially-designed oxy-acetylene heads, mounted in a frame built from structural angles, together with the necessary mixer tubes and controls; the heads are so arranged that all surfaces of the rails are reached simultaneously. Each rail is guided accurately through the flame-cleaning machine by a set of vertical and horizontal ball-bearing rollers, arranged immediately ahead of the jets, and for guiding the rail laterally there are two vertical rollers, one on each side. As the Oxweld automatic pressure rail-welding process is in use, which leaves a bulge on the base of the rail at the joint, the horizontal roller carrying the rail past the jets is arranged on springs, which are depressed by the bulge, while another roller above the rail-head keeps the rail from rising and striking the jets.

Beyond the flame-cleaning machine is a second stationary frame which holds a series of ten spring-mounted wire brushes so arranged as to reach all surfaces of the rail, for the removal of the loose scale. Finally, each rail is passed through a box, in which four automatic spray-heads, similar to those used in paint-spray guns, spray all surfaces of each rail at a pressure of about 20 lb. per sq. in. In the flame-cleaning, the rails reach a temperature of about 140° F. and the heat thus used accelerates the drying of the oil; during cold weather a speed of approximately 20 ft. per min. is maintained through the plant, but in warm weather the movement can be accelerated. To assure complete dehydration, it is preferable to conduct the treatment when humidity is relatively low. The rails are drawn through the plant at a uniform speed by a motor-operated winch. It is considered desirable to leave the rails for at least a week between oiling and laying.

Flame-cleaning and oiling were begun in 1941, and with ordinary manual methods a gang of five men dealt with about 30 rails a day; on the continuous plant an operator and four labourers handle 150 rails a day. It is reckoned that an increase of rail life of at least 25 per cent. is obtained by the treatment. The longest rails that have been dealt with have been 1,014-ft. lengths, each welded from 26 39-ft. rails, required for tunnel relaying; these were drawn through the plant by a petrol-driven hoist engine. For the most part the rails are of the 131 lb. per yd. flat-bottom section. A similar flame-cleaning and oiling treatment is now being applied to fishplates for use with the oiled rails, and is justified by the size of the American plate, which is considerably deeper, longer, and heavier than the type of plate used normally in Great Britain.

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Interstate Commerce Commission

IT was announced recently from Washington, D.C., that an appropriation Bill provided $7,890,529 to meet the expenditure of the I.C.C. during the next fiscal year to June 30, 1946. Almost simultaneously the 58th annual report of the I.C.C. came to hand and showed that in the year ended June, 1944, its expenditure amounted to $9,172,900. This sum was composed of the following items :—

	$
Salaries and expenses of the Commissioners and their principal assistants ...	2,860,00
Accounting inquiries	795,000
Safety of employees	565,000
Signal and train-control devices	165,900
Locomotive inspection	538,000
Valuation of carriers' property	650,000
Motor transport regulation	3,150,000
Printing and binding	150,000
National defence measures	299,000

In view of the widespread character of the I.C.C.'s activities, it does not seem probable that the cost of its work will be less in the near future. Finance apart, the 58th report covers the 12 months from November 1, 1943, to October 31, 1944. This awkward arrangement means that the report deals largely with railway statistics for 1943 which were thoroughly canvassed on publication and are now quite cold. We do not propose to refer to these figures again, but prefer to select from the report a few points which illustrate the scope of the I.C.C.'s functions.

From the review of the whole transport field, it is clear that the railways became more markedly than before the backbone of the U.S.A. system of ways and communications. The equipment situation in the motor-carrier industry was not too good. Shortages of new vehicles, spare parts and heavy tyres led to a decline in vehicle-miles. The scrapping of over a million private motor-cars every year has tended to swell the volume of motorbus and railway passenger traffic. As compared with other transport agencies, pipe-lines have shown the most striking increases in facilities. Although the total carrying capacity of vessels on the Great Lakes and inland waterways was larger in 1943 than in 1942, both tons-originated and ton-miles worked showed decreases—a disappointing result in view of the amount of money spent on improving water navigation in recent years.

The I.C.C. has approved plans of reorganisation for 20 railways which involve the reduction of their long-term debt. The report does not discuss the objections raised to the policy of eliminating in these schemes all " old company " equities. The railways want fresh legislation on this subject, urging that investors will not buy stocks which may be abolished arbitrarily. The railways also consider that they are unfairly treated in regard to reserves for deferred maintenance in as much as charges to operating expenses under that head are not recognised by the Inland Revenue Code as deductible for income tax purposes. On the other hand the I.C.C. does not see eye to eye with the Department of Justice, which has charged the Association of American Railroads with breaches of the Sherman Acts against trusts and has asked the courts to dissolve that body. In guarded language the report hints that undue breadth in interpreting the Sherman Act would interfere with the duty of the I.C.C. to prevent unfair or destructive competitive practices. The Commission's own Bureau of Law is kept fully employed as it always has about 50 lawsuits pending in the courts.

Another busy bureau deals with locomotive inspection. Over 117,000 locomotives were examined in the year ended June, 1944, and 11 per cent. were found with defects that should have been corrected. The inspectors ordered 630 of these engines out of service as being immediately unsafe. The number of boiler explosions investigated was 19, all being caused by overheating of the crown sheets due to low water. One of these accidents occurred when the locomotive was hauling a passenger train at 70 miles an hour. Under an order made by the I.C.C. in March, 1939, mechanical stokers have been installed on all large coal-burning steam locomotives and form part of the equipment of new engines of that

class put into service. It is claimed that the fitting of mechanical stokers contributed materially to the ability of the railways to handle wartime traffic successfully.

The Bureau of Safety is not satisfied with the progress made in equipping freight wagons with standard power brakes. All wagons should have been fitted by the end of 1944, but only 45 per cent. comply with the order issued ten years ago and probably the railways will be given another year's grace. The Bureau of Economics & Statistics published during the 12 months under review four special studies on :

(1) Analysis of railway dividends, 1890-1941,
(2) Employee retirement and unemployment insurance as affecting railway finances.
(3) Use and cost of railway fuel and problems in fuel statistics.
(4) Post-war traffic levels in 1947 to 1949.

The cost-finding section of the Bureau has started an extensive investigation into the cost of carrying freight by motor vehicle in various sections of the country. Under war conditions, both this Bureau and the Bureau of Valuation have found difficulty in keeping abreast with current work, always growing in volume. The Bureau of Water Carriers, however, has made headway with its task of regulating water transport, although the war has disrupted most normal services round the coasts, on the Great Lakes and on inland navigations.

After a perusal of the report our conclusion is that the I.C.C. did a great deal of useful work in its 58th period, but there appears to be some danger of one or two of its branches being overwhelmed by the mass of detailed reports which they receive. So far from a reduction in the I.C.C. budget being possible, it looks as though the functions assigned by Congress cannot be discharged without incurring additional expenditure in the after-war years.

* * * *

Reinstatement of Canadian Railwaymen

SOMETHING more than merely carrying out the letter of the law will be practised by the Canadian National Railways in reinstating employees returned from war service, according to a letter sent by Mr. R. C. Vaughan, Chairman & President, to Vice-Presidents and heads of departments. More than 1,600 Canadian National employees have reported back to work on their discharge from the Armed Forces and have been re-established, but they represent only about 8 per cent. of the employees who have been granted leave of absence to serve with the Forces. In common with all employers in Canada, the C.N.R. has definite legal obligations to its employees returning from war services. These are contained in the Re-Instatement in Civil Employment Act, 1942, and in the Re-Instatement Regulations set forth in Order in Council P.C. 77 of January 11, 1945. Mr. Vaughan's letter was written " primarily for the purpose of discussing the applications of these formal documents to our own flesh and blood, that is to say, to the members of our railway family who answered the call of duty and have fought valiantly to preserve our Canadian way of life, and who, when their military service is done, will wish to take their rightful place among us."

He emphasised that it would not be enough merely to carry out the letter of the enactments. The railway officers from one end of the system to the other, by individual and organised effort, had done a magnificent job in keeping in touch with Canadian National employees in the Armed Forces, in supporting their morale in numerous ways, and in letting them know that they had not been forgotten by their fellow employees at home. The same spirit must be carried through to the end, making sure that every individual was given a hearty welcome back to the railway ranks and made to feel the genuineness of a friendly greeting, not only from his former employee associates but from the management. The aim should be to put the returning employee completely at his ease, and to assure him that the company intended to do the utmost for his welfare. Every assistance must be given the individual to readjust himself to peacetime conditions.

A Civil Re-Establishment Committee, composed of representative and experienced railway officers, has been established at the C.N.R. system headquarters to give guidance and, in some cases, official direction with respect to procedure. Most Canadian National employees are covered by labour agreements and their re-instatement will be in accordance with established processes. With regard to them, the committee's functions will be purely consultative. It will have administrative powers in the settlement of any problem which cannot be resolved otherwise in determining the proper procedure for the re-establishment of non-schedule employees. Special attention will be given to employees physically unfit to resume their former occupations. On the advice of the Chief Medical Officer of the railway, they may be given other work, or they may be granted leave of absence for a prescribed period. Mr. Vaughan has appealed to all officers to " take a keen personal interest in the matter not only on broad patriotic grounds but to the end that the reputation of the Canadian National in connection with this vital aspect of Canada's war effort shall be second to none."

Railway Organisation

(From a Correspondent)

THE question of what is the most suitable internal organisation for a railway seems always to have been most difficult to settle, but it is rather strange that the organisation of each of the four group companies differs in essentials. In view of the obvious need for the railways to maintain a close collaboration in post-war times a movement towards a standard form of organisation, based on a pooling of experiences of the four, would seem to be required. Apparently the recent announcement by the L.M.S.R. (*The Railway Gazette*, March 2, 1945) of the appointment of a District Operating Manager at Birmingham indicates that that company is going forward with the arrangement referred to by Sir William Wood in the early days of the war when he mentioned that the war had interrupted some changes in the L.M.S.R. organisation.

Whatever shape the transport system of the country takes after the war, and also equally irrespective of what State controls exist, the success of any form of transport inevitably will depend on its pleasing the public. Much of the pre-war criticism of railways was not fundamentally against railways as a scientific plant but against the way the plant was operated; in other words, it was criticism to a large extent of their organisation and staff. It must be agreed that the danger of the persons in whose hands rest decisions affecting the public being remote from, and insensitive to, a long-view commercial outlook is very real in large undertakings like railways, especially where traditionally there has been a gulf between the Operating and Commercial Departments.

The criterion of railway organisation is the relationship between the Operating and Commercial Departments. How are the many members of the administrative staff of the Operating Department (such as control staffs, inspectors, and stationmasters) who are continually faced with problems which have a commercial background to be prevented from viewing them from a purely operating standpoint? Usually there is no time in these hour-by-hour problems to place the factors before the Commercial Department for a decision. Three examples will show the type of problem referred to: (*a*) Because of late running one or two wagons (urgently required by consignee) are stranded at a marshalling yard after the railway local trip serving the station concerned has left. Is special working justified? (*b*) In planning the workings for a busy summer Saturday's passenger traffic when freight services have to be curtailed to provide train crews and paths for passenger trains. Who is to decide which freight trains should be cancelled (that is, having regard to the effect of failure to deliver—in the case of a regular flow of traffic—which results when freight services are curtailed)? (*c*) When there is an insufficient supply of wagons to meet immediate needs, who is to measure the comparative effects (long-term view) of how those available are distributed ?

It would appear that the most suitable form of organisation is one in which the Operating and Commercial interests are merged in local administrative staffs. This implies two requirements: (1) A type of District Officer combining the functions of those now covered by District Controllers, District Goods Managers, and District Passenger Managers. (2) The all-round training of staffs in the District Offices, as well as of stationmasters, goods agents, and inspectors. A very important result of such an organisation is that it ensures close working between stationmasters and goods agents. There is no necessity to sacrifice specialisation (indeed, it is fundamentally important for ensuring that given a decision its execution is arranged by the most efficient method).

The country is still lacking a lead from the Government as to its future transport policy, but meantime it is to be hoped that steps are being taken to ensure that the railways will have a sound organisation ready, so that the undoubtedly economical means of transport which in scientific theory the railways can provide will be developed to meet the public needs.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Locomotive Front End

P.O. Box 7,
Escombe, Natal, South Africa. June 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—My attention has been directed to an obscurity in my letter appearing in *The Railway Gazette* dated May 4.

In giving the alternative formulæ to those of Professor Goss, I had intended to indicate that the top of the blast pipe should be "as low as practicable"; not dimension *h* which, correspondingly, should be "as great as practicable." This is partially ensured by dimension A.

Yours faithfully,
G. V. O. BULKELEY

John Saxby—The Signal Points Inventor

Hurstpierpoint, Sussex. June 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—John Saxby was born in 1822 in the neighbourhood of Hurstpierpoint. His name is enshrined in railway annals as the inventor of the system of points and signal interlocking which was the first to provide a real plan of safety by the inter-relation of points and signals. The application of his patent made it impossible to pull off a signal unless the road was already set for the route indicated by the signal.

Saxby commenced work on the L.B.S.C.R. at Hassocks, when about 17½ years old. His job was to make the wooden mile posts for the yet unopened railway. He worked for 22½ years on the railway before commencing business on his own account. He was joined by a Mr. Farmer, and the firm was named Saxby & Farmer.

The land in the apex formed by the Brighton main line and the Hastings branch at the rear of Keymer Junction Station* was used for laying out the trial schemes of point and signal interlocking. It is not certain if the perfected layout was transferred to the railway at Keymer Junction. When this site was not sufficiently extensive for his work, the L.B.S.C.R. provided a site on the down side at the south end of Haywards Heath Station in 1861.

Shortly after Saxby & Farmer moved to Canterbury Road, Kilburn, adjacent to the L.N.W.R. Business increased rapidly. Orders from the King of the Belgians, amounting to over £200,000, it is said, were received; 2,000 men were employed for several years on this order and similar work.

The signal lamps on the L.B.S.C.R. had the coloured lenses fixed to them, and made a part revolution when the signal arms were raised or lowered. This was a precaution against the breakage or other accident that might occur to the usual coloured glass which moved up and down with the signal arm. The writer has no knowledge as to whether Saxby was the inventor of this plan.

John Saxby died at North Court, Hassocks, in 1913, aged 91 years. Descendants still reside in the district.

Yours faithfully,
G. A. SEKON

Rapid Repair of Locomotives

176, Allestree Lane,
Derby. June 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As Mr. C. E. Fairburn rightly points out in your June 15 issue, the true index of works efficiency is the time occupied between the engine entering the works gate and leaving it again ready for traffic. It may be said that the most efficient works is the one which is able to reduce this figure to a level below that of all competitors, provided that such a result is obtained without excessive expenditure. A railway usually operates seven days a week and every day therefore should be included in this index figure. To count only those days on which the works is accustomed to open its doors is to assume a parochial attitude unrelated to the economics of the railway as a whole.

Time actually spent in the erecting shop is not necessarily a criterion of individual shop organisation. Time spent on manufacture or repair in any shop is dependent on a number of factors of which the energy and capability of the foreman and the layout of his shop may be of less importance than some others. The chief designer, for instance, has a very large influence on the speed of repair. If his creations enjoy a reasonable measure of continuity in design, the introduction of high-output special-purpose machines, of jigs and fixtures to facilitate rapid production, and the maintenance of an adequate stock of spares, all become possibilities. A standardised product enables works staff to devote full attention to the improvement of works processes. Considerable variety of output may charm the "railway enthusiast," but within a works it prevents the ultimate in speed of repair.

Another factor which is outside the scope of the individual shop is that of liaison between one shop and another. It is important that the work should move on as soon as completed by any particular section and that the necessary instructions should be available with it. Here the manager should be represented by his planning and progressing staff which should be numerous enough to handle every important item without exception.

There is presumably a limit to the expenditure which profitably can be directed towards obtaining speedy repair and beyond which it is more economical to increase the stock of locomotives. Perhaps one of your correspondents would give his views on this aspect, as doubtless it has received consideration.

Yours faithfully,
H. G. NEALE

* Part of this site is now occupied by the electric sub-station

Railway Finance

London Midland & Scottish Railway Company,
Watford, Herts. July 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—"Ex-Stockholder" is perhaps unaware of the fact that a railway company requires, for the purposes of capital allowances under the Railways Act, 1921, to show to the Railway Rates Tribunal that any new capital raised or provided "pulls its weight." The capital proportion of any new work naturally includes the factors of working expenses, repairs, renewals and interest—the last item usually being the least important. Assume the pre-war annual cost of providing and working an average locomotive, apart from interest, was £2,500 and the interest item, at 4 per cent., was £250, making £2,750 in all. If the rate of interest were 3 per cent., the annual cost would become £2,688 or £62 per annum less. This is not a saving to be ignored but it is hardly likely to affect the question of spending new capital, particularly if four-fifths of the first cost were replacement of old capital financed out of revenue in the past.

What the future cost of obtaining new capital is likely to be I cannot guess, but it is not correct that the best of ordinary or preference stocks now yield about 8 per cent.

The issue of new debenture stocks would not, as stated, place "still further service" in front of preference and ordinary stocks, because, as I have explained, the test of new capital employed is, will it "pull its weight"?

Whether the Treasury, after the war, can raise new capital at 2½ per cent. I do not know, but if they do so in a free market, presumably on short-term redemption conditions, that would surely affect favourably the price at which the public generally, including the railway companies, can raise money on like conditions. Incidentally, 2½ per cent. consols now stand at 83¼ and 3 per cent. local loans at 95½, despite Treasury backing.

Your correspondent, I am glad to see, does not think the Railway Finance Corporation loan was a State subsidy. In that he differs from those I was concerned with, who stated that the railways had by assisting the Government Departments become "a mendicant of the Treasury." That is a statement as picturesque as it is inaccurate and I cannot attempt to emulate it.

Yours faithfully,
W. V. WOOD,
President

KIRKBY FATAL COLLISION, L.M.S.R., INQUEST CONCLUDED.—Mr. C. Bolton, Coroner for South-West Lancashire, sitting at Ormskirk on June 22, recorded a verdict of death by misadventure in the case of the five persons who were killed in the collision near the Dale Lane No. 1 signal box, Kirkby, L.M.S.R., on April 19, when an express travelling at high speed ran into an engine and brake which had passed from a fork line to the main line. The weather was foggy. Evidence was given that traffic to and from a factory was being delayed by the signal box still being switched out, the regular signalman not yet having come on duty in consequence of oversleeping. Another signalman, travelling to the locality at the time, communicated with the traffic controller and informed him that he knew how to operate the Dale Lane No. 1 box, where he had served during his training. To prevent further delay the controller arranged for him to switch the box in and confusion subsequently arose in dealing with the engine and brake, which passed to the main line without the signalman realising it. He then cleared the signals for the express in error. The Coroner, reviewing the facts given in evidence, said that the human element figured largely in the case; there was no question whatever of a manslaughter charge. The signalman had shown zeal in endeavouring to relieve the delay to the traffic, but had been led to commit an unfortunate mistake.

Publications Received

Narrow-Gauge Railways in North Wales. By Charles E. Lee. London: The Railway Publishing Co. Ltd., 33, Tothill Street, Westminster, S.W.1. 1945. 9 in. × 6 in. 136 pp., illustrated. Price 8s.—Students of narrow-gauge railway operation will find this a fascinating book, prepared with the author's well-known precision of detail, and containing evidence of considerable historical research. The illustrations provide a complete photographic library of the subject, especially of the locomotive stock, over a long period. Maps, charts, and technical diagrams also contribute to a full understanding of the text. The chapter headings, in themselves, provide a useful guide to the contents of the book; the Penrhyn Railway, the famous Festiniog, the Nantlle, the Padarn, the Welsh Highland, the Gorsedda and Festiniog & Blaenau lines; all are fully dealt with in an authoritative manner. In a preface in which he congratulates the author on the production of this work, Lord Penrhyn recalls the important part played by narrow-gauge railways in the development of the slate industry in North Wales. It is shown that the successful development of the narrow gauge in Wales has had enormous repercussions on railway operation everywhere, and that the narrow-gauge pioneers were well advised in their advocacy of first-class railway construction and practice on a smaller scale, avoiding the pitfalls and weaknesses of "light" railways. In this connection the author makes special reference to the work of Charles Easton Spooner, who, by his lectures and writings, played a prominent part in advocating the use of narrow gauges and Fairlie articulated locomotives. To his work and influence there may be traced directly the widespread adoption of the metre-gauge in India, and of the 3 ft. 6 in. gauge in New Zealand, as well as the construction of tens of thousands of miles of narrow-gauge railway in the U.S.A. and other parts of the world.

F. D.

The Prefabricated Port of Arromanches. London: *Shipbuilding and Shipping Record*, 33, Tothill Street, Westminster, S.W.1. 12 in. × 9 in. 36 pp. Illustrated. Price 6s. net.—The key to the Allied conquest of the European Continent was the prefabricated harbour, "Mulberry B," at Arromanches, between Cherbourg and Le Havre on the coast of Normandy. The story of the great undertaking has been told piecemeal in the press and on the radio as details were released by the Security authorities. A detailed account is now available in book form, reprinted from articles published in *Shipbuilding and Shipping Record*. Apart from its essential part in the greatest combined operation of all time, Arromanches harbour ranks as one of the foremost engineering works ever undertaken. This book records not only the hazards of D-Day and the great storm that followed, but is profusely illustrated by photographic reproductions. The pictures provide a series of vivid impressions of all stages of the invasion—the armada awaiting zero hour, the great tows across the channel, the placing of the blockships, the building of the causeways, the tremendous storm—and its aftermath; the "spud" pierheads and the landing of men and munitions, tanks and guns; the evacuation of the wounded. Two striking whole-page aerial views are worthy of special mention, one showing the complete harbour with breakwaters, pierheads, and the two floating causeways, each nearly ¾ mile long. The other picture, taken from outside the breakwater, shows in unmistakable manner the rough and tumbled seas of the Channel, contrasting vividly with the smooth water within the harbour, with scores of ships safely at anchor. The line drawings comprise maps, charts, ship-sections, and full technical details of the power-operated spud pierheads with their ingenious buffer-pontoons for operation with tank landing ships.

Modern Locomotive Classes. By Brian Reed. London: The Locomotive Publishing Co. Ltd., 88, Horseferry Road, S.W. 1. 10¼ in. × 8¼ in. 62 pp. Illustrated. Paper covers. Price 6s. net.—There are more than 200 classes of steam locomotive now at work on British railways and obviously an extensive volume would be needed to cover the whole range in detail. This book, however, deals within a reasonable compass with 61 classes of modern engine types operating on passenger, freight and yard shunting duties with the four railway groups. Three Ministry of Supply locomotives are also included. The concluding page is a complete table of contents. The pages of the book are prepared to a common standard: at the head is a photographic reproduction illustrating the type of locomotive concerned, and at the foot of the page is a fully dimensioned line drawing showing also axle weights, total weights, boiler pressure, cylinder sizes, and fuel and water capacities, conveniently arranged. In each instance, the text provides a comprehensive description of the class with full details of heating surface, main dimensions, and special features of design.

La Signalisation du Chemin de fer Métropolitain de Paris. (The Signalling of the Paris Metropolitan Railway). By Robert Pornin, Honorary Director of the Technical Department. 6½ in. × 10 in. 355 pp. 141 illustrations, including photographs and folding plates. Paris, 1944. Léon Eyrolles, publisher, 61, Boulevard St. Germain.—The Paris Metropolitan Railway, the first section of which was opened on July 19, 1900, has been signalled automatically from the beginning. In view of the state of development, at that date, of signal apparatus as applied to electric railways, compared with what has been attained since, it is evident that (as with the London Underground) a very interesting story must rest in the 45 intervening years. That story, hitherto available only in scattered articles in technical journals, although outlined broadly in our issue of November 3, 1933, has now been told fully in M. Pornin's book. For many years—indeed, until 1922—track circuiting was not used. However, very reliable working was attained, in spite of difficulties by using intermittent contact signalling, first on the "normal clear," but later on the "normal danger" system. Originally, wheel-actuated treadles of the old American Hall type were used, but these were replaced, from 1904, by short sections of contact bar, energised by the idle collector shoes on the trains. Finally, this arrangement became standard throughout the railway. In 1922, however, with the opening of the Exelmans-Trocadéro section, a.c. track circuits made their appearance and with them the "normal clear" system again found favour. All new sections of the line were so equipped and the transformation of the old contact-bar sections was completed later, beginning with the original 1900 Vincennes-Maillot route in 1924, but with final improvements in 1930, and ending with the Nation-Italie section in 1942. Improvements were also made in the a.c. equipment and with the taking over of the working of the Sceaux line by Metro electric trains in January, 1938, certain additional requirements had to be met, including the provision of a fourth aspect, cab signals, and more elaborate station interlocking equipment. M. Pornin, in this remarkably detailed volume, has given not only the history of the early efforts made to establish a non-track circuit system, but also a full explanation of every item of equipment since used, together with particulars of the various station layouts, the timetables, the handling of traffic at the terminals, emergency working, repairs, maintenance, and other matters. The book enables a correct comparison to be made with signalling in other capital cities and shows that Paris has not been behind in meeting the problems peculiar to its own underground railway system. The present head of the Metro Engineering Department, Monsieur M. Fauconnier, contributes a preface.

British East Africa. Review of Commercial Conditions. H.M. Stationery Office. London and provinces. 1945. 8¼ in. × 5¼ in. 40 pp. Price 6d.—This review is included in the series, covering twenty-six countries, which is being prepared by the Department of Overseas Trade, in collaboration with its overseas officers, to assist firms with their post-war export plans. The reviews deal with commercial conditions in the various countries before the war, with particular reference to trade with the United Kingdom, wartime changes in their economy and external trade and the opportunities they offer for United Kingdom goods. They give a straightforward account of developments in each market since the outbreak of the war and should be of distinct value to exporters. The review, together with others dealing with Iraq, Palestine, Argentina, Uruguay, Sweden, and Portugal, as well as those previously issued for U.S.A., Bolivia, Brazil, Chile, and Peru, are obtainable from H.M. Stationery Office, York House, Kingsway, London, W.C.2, and its provincial branches or through any bookseller. The reviews are priced at 6d. and 1s. according to length. The subscription rate for the entire series of 26 countries is £1, delivered as published.

Silentbloc Catalogue. Silentbloc Limited, Victoria Gardens, Ladbroke Road, London, W.11. Supplied free by the company, on application on business notepaper. 10¼ in. × 9 in. 86 pp.—The new Silentbloc catalogue merits special mention, in the first, instance for the excellence of its production. The art-paper pages are stippled, a method of finishing that admirably sets off both text and illustrations. Each section of the catalogue is provided with a differently coloured tag, with printed heading, which facilitates reference. The contents cover all applications of the company's flexible bearings, anti-vibration mountings, and flexible couplings. The various types of bearing are illustrated by line drawings; full dimensions and loading capacities are given in a series of tables. Anti-vibration mountings and flexible couplings are dealt with in a similar manner and numbers of photographs are reproduced, showing units in use for different purposes.

Hints to Business Men Visiting Australia. The Department of Overseas Trade. London. 1945. 8¼ in. × 5¼ in. 28 pp.—This booklet is one of a series relating to other markets and is obtainable from the Department of Overseas Trade by representatives of United Kingdom firms interested in export trade. The publication contains useful information on Australia, with notes on travel facilities, customs regulations, and so on. A section is devoted to market research and sales promotion.

The Scrap Heap

A collection taken in the Chief Mechanical Engineers & Electrical Engineers Department, Carriage & Wagon Works, Superintendent's Office, L.M.S.R., at Litchworth Lane, Derby, realised £11 17s. 8d., which has been sent to the Merchant Navy Comforts Service.

* * *

The Railway Companies regret the discomfort of their passengers and derive no benefit from it.

Under the Government Control Agreement, Railway Revenue is fixed at £43,469,000 a year.

Any surplus goes directly to the Government, which since 1940 has received £176,199,000 from this source.

A suggested poster for the main-line railways

* * *

FARE'S FAIR

Railway companies must soon make up their minds to some definite policy about holiday trains. Either the purchase of a first class ticket, by, for instance, invalids and old people, should secure first class accommodation or else first class fares should be abolished. Certain it is that railways will have a considerable falling off in this class of revenue if things continue as at present. People are not going to pay first class fares for cattle-truck herded accommodation.—*From "The Liverpool Post."*

* * *

A MINISTRY OF FOOD INQUIRY

By what right does the Minister of Food take on himself to demand information as to the married or unmarried status of the women of this country? This information has no relevance to rationing, since men and women, whether married, single, or living together without marriage, are entitled to their rations, and the demand for it appears to be a piece of sheer bureaucratic impertinence, especially as it was not demanded in the preparation of the National Register.—*Miss Irene A. Clephane in a letter to "The Times."*

* * *

The reason for asking women to enter "Mrs." or "Miss" after their names in applications for new ration books is to discover the numbers and distribution of married women. This is required for the study of the trend of population in Great Britain, which affects many purposes of government—housing, education, supplies, trade, and so on. It would normally be available from the census reports, but there has been no general census in Great Britain since 1931. "Mrs." or "Miss" is not entered on the new ration books. The information is kept solely for official purposes.—*W. Shelton Smith, Director of Public Relations, Ministry of Food, in a letter in "The Times."*

* * *

100 YEARS AGO

From THE RAILWAY TIMES, *July* 6, 1845

THE IRON TIMES, a Railway Morning Newspaper, price Sixpence, on Monday Morning next, July 7th, 1845, containing, each day, as a distinctive feature, the prices of the shares of all the railways in all the markets, with a copious variety of Stock Exchange intelligence, and other information respecting every projected line, such as has not hitherto been found in any newspaper, daily or weekly.

It is, of course, unnecessary to expatiate on the importance of such a medium for the discussion and defence of the interests of railways, *old and new*, at the present moment. It must be evident to all, that while every day the Houses of Parliament bring out new facts, the slow course of the weekly railway papers must come halting behind the exigencies, whether of discussion, statement, or defence; nor is it to be disregarded, that the confused accumulation of statements, the strong tone of prejudice, and the controversial petulance of the railway weekly papers (with perhaps one or two exceptions), have rendered them but unsatisfactory, not to say suspected, guides to the public at large, who by the immense increase of projected lines, have now, themselves, become universally parties interested in the matters in dispute.

It will be the business of the *Iron Times* to assume amongst Railways the position which the TIMES has taken in politics—not to mix itself up in minor squabbles and selfish oppositions, but to keep steadily in view the interests of property, and the full and larger development of our railway system, in which is so essentially comprised the advancement of the public good.

It is requested that all Advertisements and Communications be forwarded to the *Iron Times* Office as early as possible.

Office, 112, Fleet-street.

"It's really quite comfy—the only drawback is that it's a non-smoker"
(Reproduced by permission of the proprietors of "Punch")

RAILWAY QUESTIONS AND ANSWERS

Statement.—Four companies, operating against one another and duplicating services unnecessarily, is wasteful competition and not in the national or public interest.

Answer.—There are really two propositions here: (1) that four companies are operating against each other, and (2) that they are duplicating services unnecessarily. What is the alternative to four companies? Three companies? Two? Or one? The first question to consider is why were the 123 railway companies amalgamated by Parliament into four groups after the last war. The answer (which years of operating between the wars has proved to be right) is that the four companies as at present constituted are as large as can be efficiently and competently handled. This is also confirmed out of their own experience by railway managers in the United States and on the Continent of Europe, witness the General Manager of the French National Railways, who, regretting the size of his own railway company, said that for really efficient operating a railway should be of a size to employ some 130,000 workers. British railways before the war averaged 145,000 employees each. Unification of the railways would also lead to over-centralisation, with the man on the spot less ready to make those instant decisions upon which the successful operating of an intricate system like the railways, so much depends. Less effective also would be those personal relationships existing between traders and local railway officers which do much to smooth the wheels of commerce. Because trains run on two different railways from London to, say, Birmingham, the cry of duplicated services is raised. It is overlooked that different railways serve different towns and cities *en route*. Where the services are non-stop they are, by agreement between the two companies concerned, timed to give the public alternative routes at different times of the day, and tickets of one railway are available on the other.—*From "Answers to Questions and Statements," issued by the British Main-Line Railway Companies, 22, Palace Chambers, London, S.W.1.*

* * *

More than 39 million tons of coal were used by the Canadian National Railways during the five years and eight months of the war in Europe, and more than 309 million gallons of oil. Timber totalled 741,750,000 ft. New rail amounted to 426,625 tons, and relaid rail to 359,875 tons. More than 715,000 wheels were used. Sleepers numbered 34,272,000.

* * *

"SUNSHINE RETURNS TO THE GREAT HALL AT EUSTON"

Writes a correspondent: "Why will railway photographers take dead pictures? If they must take the steps in the Great Hall at Euston (page 605, June 15 issue), they should 'shoot' when Sir Harold Hartley is engaged in an animated talk about air services with his henchman, Mr. G. Hussey, at the top of the stairs—Mr. W. J. Anderson ascending the flight below in serious mood to meet them."

* * *

TAILPIECE

(*The Pullman Car Manufacturing Company has designed a club-cinema car*; *see page* 11)

Trailing across America in pioneering days
Was done by covered wagon and other simple ways
By any modern standard efficiency was weak,
And luxury in transit was very far to seek.

Trailing across America a little later on,
You found affairs in general distinctly better run.
You travelled over railways, unchecked from sea to sea,
That brought you to the Golden Gate with speed and certainty.

Trailing across America a man may travel far
In comfort in a cocktail lounge plus observation car,
A two-in-one convertible wherever railways go
Into a club for dancing, complete with picture show.

E. C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

AUSTRALIA

Commonwealth Railways in 1943-44

Earnings of the Commonwealth Railways for the financial year ended June 30, 1944, exceeded working expenditure on all the four systems owned by the Australian Commonwealth, except the Capital Territory Railway. The total excess earnings in the year 1943-44 were £1,038,640, compared with £1,675,270 in the preceding year. The accompanying table gives some statistics relating to each of the four lines, and the results are the subject of an editorial note on page 2.

AUSTRALIAN COMMONWEALTH RAILWAYS RESULTS IN 1943-44

—	Financial year	Trans-Australian Railway	Central Australia Railway	North Australia Railway	Australian Capital Territory Railway	Total for all Railways
Miles open for traffic	1943-44	1,108 m. 16 ch.	771 m. 33 ch.	316 m. 40 ch.	4 m. 75 ch.	2,201 m. 4 ch.
Cost (excluding rolling stock)	1944	£8,211,283	£4,375,804	£2,656,410	£87,008	£15,330,505
	1943	£8,162,006	£4,359,442	£2,654,907	£87,008	£15,263,363
Cost per mile (excluding rolling stock)	1944	£7,410	£5,672	£8,393	£17,622	£6,965
	1943	£7,365	£5,651	£8,388	£17,622	£6,935
Cost of rolling stock	1944	£1,520,398	£532,477	£116,105	(a)	£2,168,980
	1943	£1,491,894	£531,450	£115,897	(a)	£2,139,241
Earnings	1944	£1,022,415	£1,577,240	£847,792	£11,757	£3,459,204
	1943	£1,242,158	£1,722,916	£769,072	£11,917	£3,746,063
Working expenses ...	1944	£880,746	£1,044,157	£482,114	£13,547	£2,420,564
	1943	£913,083	£820,251	£325,380	£12,079	£2,070,793
Productive train miles	1944	846,532	1,854,747	741,527	9,770	3,452,576
	1943	1,182,231	1,742,547	536,779	11,315	3,472,872
Earnings per train mile	1944	24s. 2d.	17s. 0d.	22s. 10½d.	24s. 0¼d.	20s. 0¼d.
	1943	21s. 0½d.	19s. 9¼d.	28s. 7¾d.	21s. 0¼d.	21s. 6¼d.
Working expenses per train mile	1944	20s. 9¼d.	11s. 3¼d.	13s. 0d	27s 8¾d.	14s. 0¼d.
	1943	15s. 5¼d.	9s. 5d.	12s. 1¼d.	21s. 4¼d.	11s. 11d.
Results of working (excluding interest)	1944	+£141,669	+£533,083	+£365,678	—£1,790	+£1,038,640
	1943	+£329,075	+£902,665	+£443,692	—£162	+£1,675,270
Interest	1944	£116,579	£167,950	£76,931	£1,305	£362,765
	1943	£117,051	£168,119	£77,251	£1,319	£363,740

(a) The rolling stock is the property of the New South Wales Railways

More than £70,000 is to be spent this year on the Administration's programme for the electrification of railways on the Western Transvaal System. Some £20,000 out of an estimated total of £260,000 is to be spent this year on the quadrupling of the line between Pretoria and Hercules on the Eastern Transvaal System. The Pretoria yard will be remodelled at a cost of £173,576 of which £20,000 will be spent this year.

SOUTH AFRICA

Cape Western System

The 1945-46 capital and betterment estimates provide for beginning the construction, this year, of a railway marshalling yard at Belville; £40,000 will be spent on this £343,000 project. An initial £10,000 is provided for the new Kensington-Belville Railway line, which is eventually to cost £739,478. A sum of £15,000 is provided for the quadrupling of the railway line between Capetown and Maitland at a total cost of £130,000. The electrification of the Belville-Touws River line, including the Stellenbosch loop, at an estimated cost of £1,588,400, is also to begin during the year, when £20,000 is to be spent. An initial £6,000 is to be spent on the electrification of the Eerste River-Strand line at a total estimated cost of £79,100.

Table Bay Harbour

A final £133,866 is provided to complete the £2,442,306 job of providing additional deep-water berths and extending the New Basin in Table Bay Harbour. A further £724,000 is to be made available for the construction of Capetown's graving dock on which £2,646,000 has already been spent and which will eventually cost £3,510,000. An additional sum of £1,500 is provided for installations in Table Bay Harbour.

Transvaal Estimates

Expenditure on the construction of railways in the Transvaal will amount to £327,174 during 1945-46. The biggest item is £298,174 for the Oogies-Van Dyk's Drift colliery line, and the Canada-Phomolomg line will be nearly completed with this year's expenditure of £24,000.

Yard improvements at Pretoria West amount to £85,000, of which £10,000 will be spent this year. The remodelling of the yard and new station building at Waterval Boven will cost £163,883 of which £6,000 will be spent this year.

The money to be spent on the laying of permanent way includes £10,000 on the Canada-Booysens quadrupling and deviation scheme which will cost £592,000 in all, and £10,000 on the Union-Vereeniging doubling project which is estimated to cost a total of £465,000.

MOZAMBIQUE

Railway Construction

The completion of the railway link between Beira and Tete is expected to make a marked contribution to the development of the colony's mineral resources. Many of the indicated mineral deposits of Mozambique are in the neighbourhood of Tete. The section between Tete and Dona Ana near the Zambezi River bridge on the Trans-Zambezi Railway to Beira remains unfinished, and it is estimated that three years may elapse before the necessary construction materials become available. A map was published in *The Railway Gazette* for September 10, 1943.

UNITED STATES

Pullman Exhibition

A short time ago the Pullman-Standard Car Manufacturing Company held an exhibition in New York entitled "Tomorrow's Trains Today," in which there was placed on show a variety of coach designs which have been prepared by this company for post-war production as soon as the labour and materials situations permit. The exhibits included the "Day-Nite" coach, the three-tier sleeper, duplex roomette sleeping accommodation, the club car with its miniature theatre, and a three-deck coach for suburban service. Improvements in construction and equipment also were featured, such as bogies with shock absorbers and soft springs with ample travel, hot axlebox alarm systems, improved lighting and communication, low-angle reclining seats with leg-rests for "coach" travellers, diagonal seating in dining cars for reducing congestion, and distinctive styles for vehicle exteriors.

Chesapeake & Ohio Traffic Control

An extension of centralised traffic control in the State of Kentucky has been decided on by the Chesapeake & Ohio Railway between Big Sandy Junction and Beaver Junction, over a distance of 84 miles, to be supplemented by absolute permissive block signalling over the 44 miles from Beaver Junction to Elkhorn City. The style C control machine will be located at Ashland, 6 miles from Big Sandy Junction. The installation will include electrically-operated switch layouts, electric switch-locks for hand-operated switches, colour-light signals, and the required apparatus for coded carrier control. The equipment has been ordered from the Union Switch & Signal Company for installation by the railway's staff.

SWITZERLAND

Transport Museum and Railway Centenary

Various references have been made in these columns to the proposed establishment of a National Traffic Museum in Zurich, for which an association was formed in March, 1943, under the style of Verkehrshaus der Schweiz (or Maison suisse des transports et communications). So far, little progress has been made towards actual construction, and the site is not even selected definitely. Various locations come into consideration; one scheme is to use several floors of a many-storied building which may be constructed at Zurich main station in lieu of the present old-fashioned station premises.

Meanwhile, however, active preparations are being made by M. Fontanellaz and his staff for the appropriate celebration in 1947 of the Swiss Railway Centenary, even if the museum has not materialised by then. The detailed plans for the construction of an accurate full-size model of locomotive No. 1 of the Nordbahn (Zurich-Baden) are now completed, and those of the coaching stock are in preparation. The Centenary train will consist of engine and tender, first and second class composite, third class and open fourth class coaches, and van, probably 8 cars in all, and will tour the country after the celebrations in Zurich, carrying passengers on advertised trips from main centres.

Of the original vehicles preserved for the museum, two interesting specimens are now accommodated in one of the Zurich Tramways car sheds. One is steam locomotive No. 12 of the Berne Tramways Company, built in 1894 by the Swiss Locomotive & Machine Works, Winterthur, and which had been working since 1909 at a sleeper works near Bienne. Its principal dimensions are:—

Overall length	5·6 m.
Tare...	13·4 *tonnes*
Cylinder diameter...	240 mm.
Stroke	350 mm.
Diameter of driving wheels	750 mm.
Boiler pressure	14 atm.
Heating surface	25 sq. m.
Grate area	...0·45 sq. m.

Another exhibit is one of the first cars of the Vevey-Montreux-Chillon electric tramway, built in 1886, a double-decker taring 3·5 *tonnes*. Locomotive No. 1, *Rhaetia*, of the Landquart-Davos Railway (first component of the present Rhaetian system) will be added shortly; this is a 2-6-0 tank engine built in 1889.

Track Inspection on the L.N.E.R.

Amended and simplified procedure

FOR a number of years on the L.N.E.R. a system of assessing numerically the condition of the track lengths has been in force and the procedure has now been adopted throughout that system on somewhat amended lines. The amendments consist mainly of simplification. Decimal points are eliminated and the total target is 1,000 instead of 100 marks. The values of the various features to be appraised have been altered so as to round off the figures and at the same time marks have been introduced for drainage, the importance of which comes to be more appreciated.

The form now in use is illustrated as entered up for a hypothetical length in reasonably good order.

Inquiry is often made as to what circumstances would prevail in the case of a length which would gain full marks and one which would score no marks at all. Admittedly perfection cannot be contemplated, and even on a goods line suffering from every handicap more than half marks probably would be given. In practice the marking of lengths is normally between 650 and 950.

Uniformity of assessment is essential: to this end the judgment of individuals of considerable experience of the system was pooled and a small nucleus was formed which trained others, who again became apostles to spread over a widening field the level of uniform discrimination.

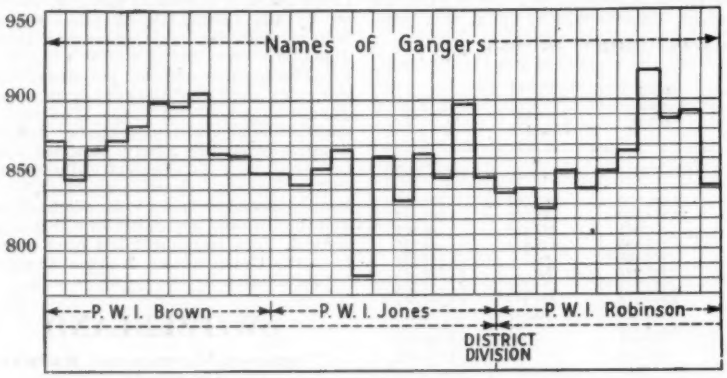
Although permanent way inspectors are under obligation periodically to mark the lengths under their control, it is from markings once a year by members of the staff covering a larger field, that the summaries are made up. These members are, the District Engineer, his assistant, his Chief Permanent Way Inspector, and one other selected individual.

What, therefore, is involved in this review? If the District comprises 160 lengths, and full days were equally allotted, allowing of four lengths being inspected daily, each member of the panel would devote ten days a year to this end.

The results at the end of the year are capable of comparison by summarised figures or graphs as between inspectors and districts, with any subdivisions required—perhaps between important, less important, and unimportant lines, with the addition of a class for locations comprising sidings alone. The procedure is least applicable to the last-named lengths, but inclusion is desirable to make the picture complete.

Apart from the general view obtained, the results may show up individual cases of lengths far below the standard desired or far above the standard hope. The fruits over the whole system may not be available for some time, and until normal conditions are restored the advantages cannot be expected to be fully enjoyed.

Meantime this mode of assessment can be of value for a special survey of individual stretches of the railway. After years of war it may be well to ascertain by more than impressions the extent to which deterioration has developed, and that it is not enroaching unseen.



Graph of results recorded for a section of line

L.N.E.R. TRACK INSPECTION REPORT. CHIEF ENGINEER'S DEPARTMENT. E. 623

District ..... Section of Line or Branch .....

Inspector Smith Ganger Jones Mileage from 27¼ to 29½

Gang No. 17 Normal strength including Ganger 4

		ITEM	Maximum Marks	Marks Awarded	Remarks
TOP	1.	Longitudinal Level	100	85	Some low joints at 28M up.
	2.	Packing of Sleepers Rail seating in chairs	100	83	Hanging sleepers through platform
LINE	3.	Line	100	87	
	4.	Gauge. Sleepers laid square	100	84	
LEVEL	5.	Cross Levels and Cant	100	83	Inaccurate on straight 27¼-27½ up
JOINTS	6.	Fish plates and Bolts Expansion spaces and creep	100	84	Creep prevalent at N. end of length
FASTENINGS	7.	Keys, Screws, Ferrules, Spikes, Trenails, P. & C. Bolts	100	80	Keys loose in two level crossings
BALLAST	8.	Dryness, cleanliness, neatness & edging	100	78	
DRAINAGE	9.	Side Drains, Ditches, Pipes & Manholes	100	86	
GENERAL NEATNESS	10.	Cesses, Verges Banks, Huts and Stores	100	80	Material not too tidily stacked
		TOTAL	1,000	830	

GENERAL REMARKS Length has been one man short recently

Date ..... Signed .....

Example of a completed track inspection report

Travel Comfort in the United States

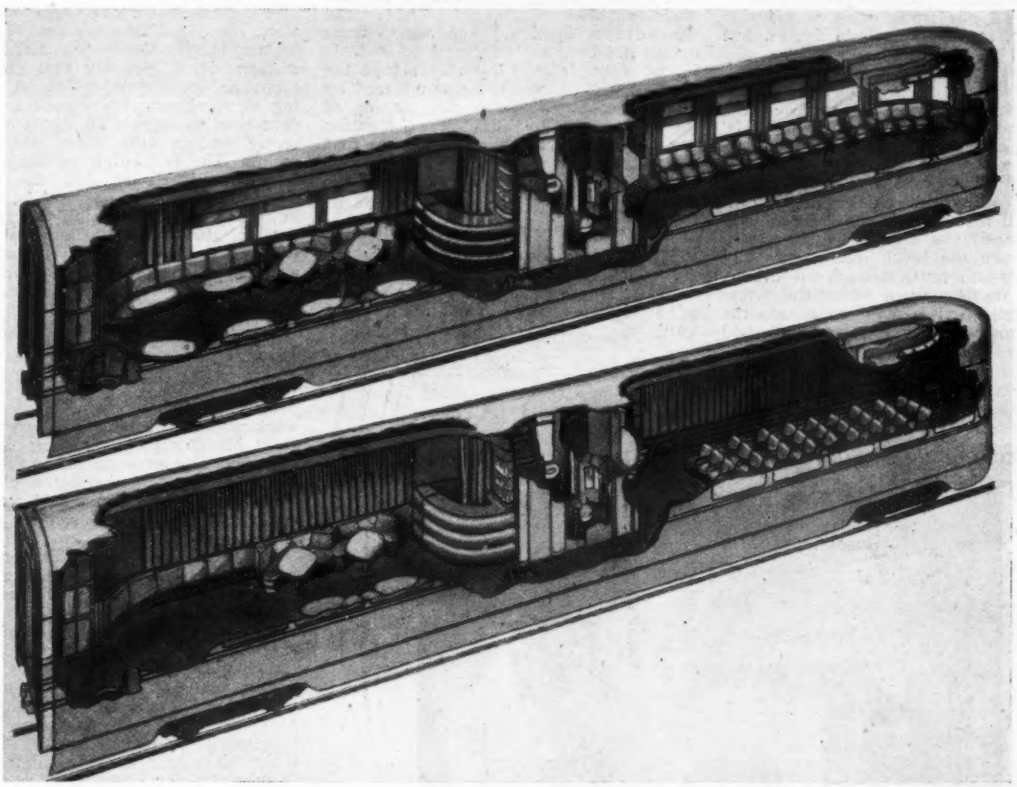
A special Pullman coach designed for use as a club or cinema

ONE of the problems that, for many years, has faced railway operators is the tedium to which travellers are subjected on long journeys. Where considerable distances are involved, as in the United States, the difficulties attendant on cramped quarters assume large proportions. Even on board ship, where space restrictions are not nearly as serious as on a train, it has become the accepted practice to provide reasonable recreational facilities for the travelling public. The practice has now spread to the railways, in varying degrees according to the country concerned.

The cinema, the cocktail-bar, and the dancing-car have all made appearances at different times as amenities on long railway journeys, especially at night with window observation at a discount. The latest development in travel comfort is the club-cinema car, designed by the Pullman Standard Car Manufacturing Company, U.S.A., which combines in one coach a cocktail lounge and observation saloon for day use, readily convertible at night into a club where dancing and cocktails can be enjoyed, with cinema shows as an alternative.

The accompanying illustrations show the layout of the club-cinema coach and the manner in which the interior arrangement can be varied to meet requirements. It will be noted that the lounge seats can be folded up to provide space for a dance floor. Seating in the rear of the observation coach is easily re-arranged to accommodate an audience in the miniature theatre.

For the foregoing details and illustrations we are indebted to our American contemporary, the *Railway Age*.



The Pullman Standard club-cinema coach with lounge and observation saloon for day use (above) and as converted (below) into a club and cinema

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CHANGES IN MACHINERY AND EXPORT LICENSING.—Hitherto many classes of machinery and plant have been licensable under the Machinery, Plant & Appliances Orders when supplied to the home market, and under the Export Control Orders when supplied for export. The main effect of an Order made recently by the Board of Trade, the Machinery, Plant & Appliances (Consolidation) Order, 1945 (S.R. & O. 1945, No. 631), together with certain changes made by the Export of Goods (Control) (No. 4) Order, 1945 (S.R. & O. 1945, No. 576) (both Orders effective from June 11), is to bring the bulk of the controlled classes of machinery and plant, whether for home or export, under a single licensing procedure. Although most of the controlled classes thus will be subject to machinery licensing only, whether in respect of home or export markets, a few classes will remain subject to export licence.

When an export licence is granted in such a case, no further machinery licence will be required; nor will machinery licences be needed in those cases in which export licences already have been granted to the manufacturer under the requirements existing before June 11. The main effect of the Export of Goods (Control) (No. 4) Order, 1945, is to cancel all previous Export Control Orders and to set out the export licensing position as at June 11. It reduces substantially the list of goods requiring export licences and removes all the remaining countries from the list of territories to which the export of all goods is controlled by export licensing, so that in future only goods appearing in the first schedule to the Order will require export licences. The Board of Trade intimates that it is intended, as rapidly as circumstances permit, to reduce considerably the number of individual applications necessary for machinery licences by arranging in all suitable cases for the issue of bulk licences to manufacturers to cover their supplies for export in the same way as is being increasingly adopted for home supplies. Those concerned are advised by the Board of Trade carefully to study the provisions of the Machinery, Plant & Appliances (Consolidation) Order, 1945, and the Export of Goods (Control) (No. 4) Order, 1945.

Copies of these orders are obtainable through any bookseller, newsagent or direct from H.M. Stationery Office, Kingsway, London, W.C.2, price 2d. and 6d. each respectively.

Improving the Block Telegraph System

Suggestions for post-war improvements to reduce risks of failure

From a correspondent

THE level of safety on the railways of Great Britain is admittedly very high. Nevertheless a few accidents continue to occur, attributable as a rule to the failure of either signalman or driver; now and then of both at once. A perfect system of operation, eliminating all risk of mishap from the failure of individuals, would involve some automatic link between trains and signals and an automatic application of the brake at distant signals when a train passes one in the caution position. It is not practicable so to equip all our trunk lines, to mention no others, in the immediate future, but it would be possible to go a long way towards this ideal by applying generally some arrangements, already in use in varying degree, on one or more of the grouped railway systems. These may be broadly classified as follows:—

The Space Interval Principle

Under ordinary block working conditions, still met with at many main line signal boxes, the signalman forms the link between the block instruments and the signals and thus, through the driver, with the trains. Even where the "line clear" indication is made to release the starting signal lever for one pull and occupation of the home signal track circuit maintains the block needle at "train on line," there is nothing to prevent the sending of "train out of section" irregularly before the track circuit is reached and the accepting of another train into the occupied section. This risk could be eliminated by arranging the instruments to work on the rotary principle, in conjunction with the home signal track circuits, so that (*a*) after "line clear" has been given "train on line" must next be signalled and (*b*) the block indicator is thereafter held at "train on line" until the advance section home signal track circuit has been occupied and cleared. Is it not time, it may be asked, that the expression "line clear" was replaced by "train accepted," since the placing of the block needle to "line clear" signifies not merely that the line is clear but that a train has been given positive permission to approach, with the resultant restrictive implications?

Adequate Preliminary Warning

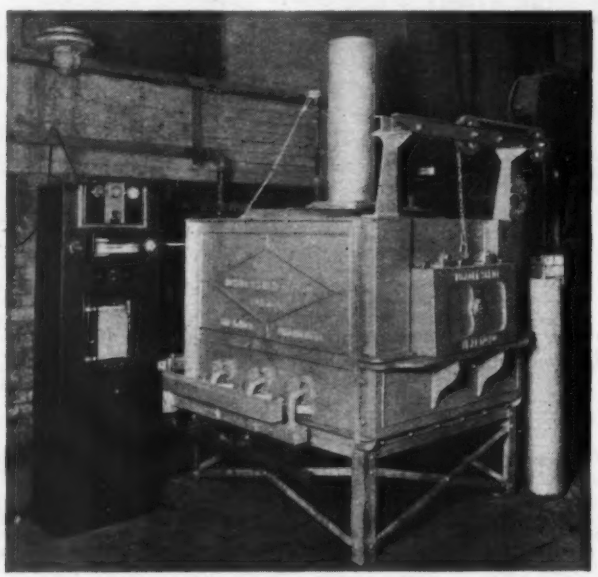
The distant signal is undoubtedly the key signal, since it either warns drivers to be prepared to stop at a certain point or authorises them to maintain speed until the following distant signal is sighted. To eliminate risk without incurring the cost of a.t.c. equipment two things are essential, adequate sighting conditions and braking distance. These will not be obtained until all semaphore distants fitted with oil lamps have given place to colour lights, preferably approach lighted, scientifically located in terms of maximum speeds and gradients. In many cases an inner distant would assist traffic operation, particularly where the ordinary one is over ¾ mile from the home signal.

Return of Signals to On Position

Too many locations exist where the return of signals to the on position behind a train is a matter entirely in the signalman's control, with consequent risk. It is not necessary, however, to instal apparatus for returning signals automatically, as by interlocking the block apparatus with the home signal lever and distant signal repeater and putting in sequential locking depending on the starting signal lever, the signalman can be compelled to operate all signal levers correctly and replace them behind each train. The remaining problems of safe working, which involve the accurate detection of points, the holding of points in the face of and during the passage of a train, the full interlocking of all functions and the virtual elimination of wrong side failures, these have been solved for the most part for some time, and the few improvements suggested should go far towards dealing with any remaining risks.

Industrial Furnace Control

A development in the design of damper operating equipment



The damper-control unit in use with a gas-fired industrial furnace

THE extensive application of automatic temperature control to industrial heating equipment has rendered it necessary to ensure constant draught conditions in industrial furnaces. Hitherto draught conditions have been controlled within rather wide limits by mechanically operated butterfly-valves actuated by the temperature control equipment. The fine adjustment of the damper plays an important part in the maintenance of correct atmosphere conditions within a furnace chamber. Such adjustment should be made not in terms of furnace temperature, but in terms of pressure, and in fact the skilled operator today will make his damper adjustment on the basis of the behaviour of the flame of a lighted match held to the spy hole of the furnace door. If maximum protection is to be given to the work under treatment, the operator will close his damper until there is a very slight positive pressure inside the furnace working chamber, thereby avoiding the influx of cold air which would damage the work and incidentally lower the efficiency of the furnace.

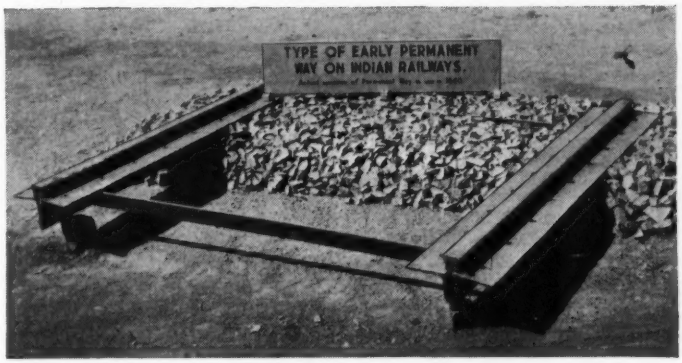
In the modern natural-draught underfired gas furnace, it is important that the damper should be closed sufficiently to ensure a slight pressure in the furnace chamber, while it must not be closed to such an extent that there is an insufficient pull at the secondary air-inlets in the recuperative system under the hearth. In many furnaces the difference in level between the secondary air-inlets, which must be under suction, and the bottom of the door, which should be under a slight pressure, is only a matter of 12 in. or less, and the "hot leg" effect on which draught depends, is only approximately 0·01 in. w.g. per 12 in. of height.

The damper control recently developed by the Incandescent Heat Co. Ltd. of Smethwick, is sensitive to pressure variations of less than 0·001 in. w.g. and consists of an ultra sensitive manometer connected by a pressure leg to the furnace chamber, and this unit controls a fractional h.p. motor which operates the furnace damper.

In furnaces fitted with automatic temperature control and the manometer unit, a reduction of gas or air supply will immediately lead to a corresponding alteration to the damper settings, and constant pressure conditions within the chamber will be assured. Another feature is that the gear is so fitted to the furnace that the waste-gas damper will close as soon as the furnace door is opened for charging or discharging operations and will automatically open again by the right amount as soon as the door is closed. With the Incandescent system of damper control the same chamber pressure is maintained at low or high temperature and at full or turn-down gas ratings.

"India's Lifeline: Her Railways"

A railway exhibition held at New Delhi



THIS all-railway exhibition was informally visited, before the opening ceremony, by the Viceroy, Commander-in-Chief, and members of the Viceroy's Executive Council. In his inaugural speech on the opening day, Sir Edward Benthall, Member for War Transport, said: "'India's Lifeline: Her Railways'; that is the slogan of this exhibition. It is so much a truism that most people never think of what would be the position if the railways had failed to function in wartime. The Bengal famine would have been ten times worse than it was. The Japanese might have been at the gates of Delhi instead of just talking about it. India's industries would have been moribund and her factories silent.

"The object of this exhibition is to bring home to people living in the capital city the burden which has been laid upon the railways. It is not intended that this exhibition should in any way be in the nature of post-war planning. It is a record more of past achievement and present practice."

On other days throughout the exhibition Sir Arthur Griffin, Chief Commissioner of Railways, and various General Managers, undertook the opening ceremony in turn.

The exhibits ranged from old and modern rolling stock to the making of railway tickets. The old Scinde, Punjaub & Delhi Railway engine *Eagle*, built by Robert Stephenson & Co. Ltd. in 1869, was there in its new bright green livery. So too was the 5¾-ton metre gauge saloon built at Ajmer in 1875 and used by H.R.H. the Prince of Wales (later King Edward VII) 70 years ago. A little younger, but still nearing old age, was N.W.R. "SG/C" 0-6-0 locomotive No. 1171, standing alongside a new "AWD" 2-8-2 lease-lend locomotive built by the Baldwin Locomotive Company. There was, moreover, one of the new Bo-Bo diesel-electric shunting engines also from America, and a Twymatic unit—consisting of two standard four-wheel army lorries coupled tail to tail and having an ingenious arrangement of steel tyres fitted over the pneumatic rubber tyres—and a jeep with metre-gauge railway wheels.

Among the other full-size rolling stock exhibits were air-conditioned ward-coaches for ambulance trains, some standard goods wagons, a specially-designed well wagon, complete with loading ramp and carrying a tank, and the G.I.P.R. dynamometer car built by the Metropolitan-Cammell Carriage Wagon & Finance Co. Ltd. in 1929. There was also an old N.W.R. four-wheel coach showing how much new work has to be put into these old decayed vehicles because of the shortage of new stock. A G.I.P.R. bogie coach was on show with one compartment left just as it went into shops, stripped of its fittings and mutilated by hooligan hands. A placard explained that, by such vandalism, the loss to one railway alone exceeded Rs. 1,00,000 (£7,500) every year. A boiler belonging to an "SG/S" engine was also on view.

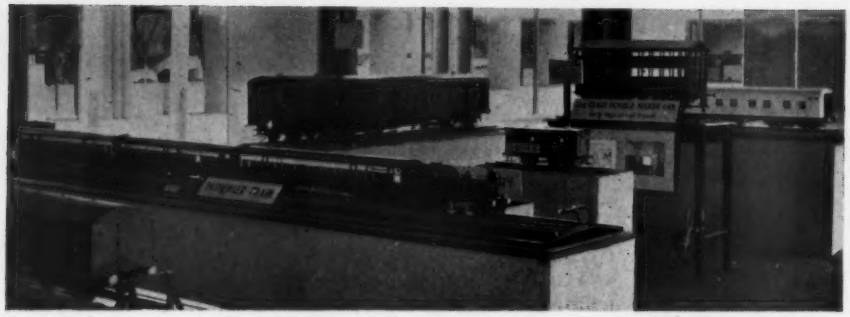
Among the track exhibits was a short section of railway line as used in India in 1860. This historic specimen had a strange rail section with hardly any bottom flange and no sleepers. Wide angles were bolted to the web on each side of the rail and these rested directly on the ballast. Gauge was maintained by slender iron ties.

A model by the Bengal-Nagpur Railway of a length of track complete with cross-over and water columns demonstrated how the scarcity of long timbers had been overcome by an ingenious design of "rail-block" turnout sleepers and interlocked track sleepers. The wartime water column, made up of welded pipe and girderwork, showed what can be done when cast-iron columns are not obtainable.

A model of the countryside explained how the Damodar river burst its banks and swept away stretches of the E.I.R. main line in 1943, and it included the

Mr. W. A. Anderson, General Manager, N.W.R., opening the exhibition on one of the days

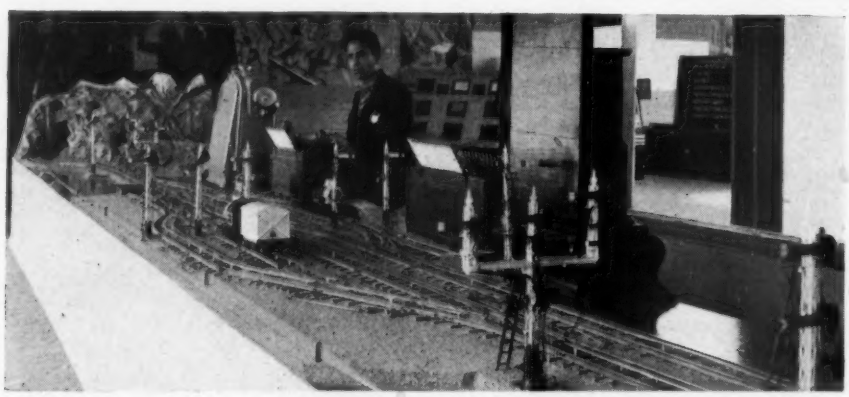
An exhibit showing the Twymatic tyre in section
(See also illustration on page 14)



Models of coaching stock at the exhibition

pile bridges built to restore traffic. Bridges were well represented: one model showed the method of regirdering the Indus Bridge at Attock in 1929, and there were half a dozen other models of bridges including the latest examples of rigid frame and stiffened-arch footbridges developed from designs by the Standards Office. Models of bridge piers demonstrated screw-pile foundations, the sinking of open-walls, and the use of an air-lock. One working model showed the open deck of a single track railway bridge modified, as a wartime measure, to carry road traffic, and the special interlocked signalling installed to ensure safety to both road and rail traffic using the bridge. There was a particularly fine model of a yard laid out for the assembling of 10,000 lease-lend metre-gauge wagons. A placard stated that 7,300 bogie wagons had been assembled at this plant in 11½ months.

The Twymatic system of steel tyres fitted over pneumatic tyres



Part of the railway from the Model Room of the Walton Training School,, N.W.R.

Models of an open-cast coal working and a coal mine, the latter a working model, served to remind visitors that coal is the life blood of the railways. In 1944, 23,000,000 tons of coal were despatched from the mines in India and the railways consumed 10,000,000 tons. The B.B. & C.I.R. exhibited a miniature working hump yard complete with a model diesel-electric locomotive pushing wagons over the rise. The Bombay electrified services of the B.B. & C.I. and the G.I.P. Railways were the most complex and detailed of the working models.

By far the most numerous models were those of railway carriages. The B.B. & C.I. had a fine working model of an air-conditioned coupé, large enough for children to have played in, and complete with ice and cool clean air. There were also scale-models of a three-coach corridor E.I.R. train hauled by an "XT" locomotive; an old third-class double-deck four-wheel E.I.R. carriage built at Howrah in 1864; an early first and second class G.I.P.R. four-wheeler painted in two colours—corresponding to the colours of the respective tickets—to differentiate between the classes; and standard N.W., G.I.P. and B.B. & C.I. Railway coaches, the latter air-conditioned. Also included were several models of hospital coaches, both metre and broad gauge, one—a B.B. & C.I.R. product from Ajmer—with a glass roof to show the inside arrangements.

The G.I.P.R. showed a working model of its track-recording car, the only one of its kind in the world; this model operated over a short section of track. The outstanding locomotive model was an "XC" Pacific, shown in section on one side, lent by the E.I.R.

The safety side of operation was demonstrated by the N.W. and B.B. & C.I. Railways. The former had a large portion of the model railway from the Walton Training School on view. Demonstrators operated full-size token instruments, and explained how railway personnel are trained to work various mechanisms to ensure safety in signalling. The B.B. & C.I.R. also showed a unit from its signalling school, including a double-line station with track-circuiting and illuminated diagrams at the lever-frames.

Other models included a wagon-ferry on the B. & A.R.; wireless masts and pontoons for Bailey bridges, representative of work turned out in the N.W.R. shops at Moghalpura; and a "Link" trainer and a "puff" gun range, both the work of Mr. H. J. Mulleneux, Chief Electrical Engineer, G.I.P.R.

Montreal Central Station, Canadian National Railways

The only important new station to be brought into use during the war. It was opened two years ago

(*See also illustrations on pages* 16 *to* 18)

TWO years have now passed since the new Montreal Central Station of the Canadian National Railways was brought into service on July 15, 1943. During the intervening period it has fully justified itself, and the adequacy of its planning and layout, according to recent reports which we have received from Canada. From the description published in a series of articles in our issues of June 2, 9 and 16, 1944, it may be recalled that work on the scheme was resumed in 1939, after an 8-year suspension, when it was decided to concentrate on completing and adapting what was already well in hand to meet war-time needs.

The station occupies 24 acres—about twice the size of the Rockefeller Centre, New York—and offers vast possibilities of development of the site over the station for commercial purposes in the post-war period. The site available for such development totals some 650,000 sq. ft. in the heart of Montreal, and close to the hotels, shopping, and other business districts; it is stated to be one of the most valuable properties now available in Canada. During its first year of service, this great station handled 6½ million passengers, who travelled on the 35,400 trains which were operated in and out of the station in the 12 months. The largest number of passengers using the station in one day during the first year was on the Friday before Dominion Day, when 27,448 travellers arrived or departed on C.N.R. trains.

On this and the three following pages we reproduce a series of new illustrations, specially taken for *The Railway Gazette* by the Canadian National Railways, giving some idea of the railway facilities in actual service.

Our original series of articles is available in brochure form, price 5s., for the benefit of those interested in post-war planning and rebuilding. Montreal Central Station is the only example of an important new station being brought into use during the war.

Platform view on the through island platform Nos. 13 *and* 14. *The train is at the face of platform* 14. *It will be noticed that these platforms are flush with the level of the passenger carriage vestibules (unlike general American practice); they are* 4 *ft. high*

ACQUISITION OF COPPER, ZINC AND NICKEL.—The Ministry of Supply announces some easing of the licensing procedure with regard to copper, nickel, and zinc. In the case of service and home civil orders it is no longer necessary to submit schedules of orders to cover applications for licences for copper, zinc, and nickel. Instead, each application must be accompanied by the following signed statement: "We certify that the quantity requested on the accompanying application is needed to cover orders for our products, and that in the case of applications for virgin metal full allowance has been made for our expected intake of scrap." In the case of export orders, there is no change in the existing procedure.

XUM

The Restaurant at Montreal Station, Canadian National Railways

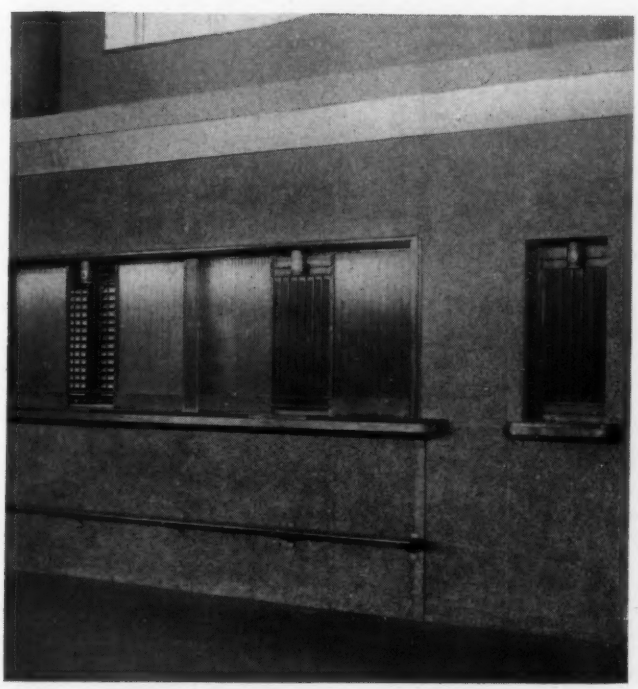
One of the four bays in the Montreal Central Station restaurant, which are of the low horseshoe counter type to facilitate rapid service

General view in the restaurant showing the four separate bays consisting of low horseshoe counters. With the addition of individual tables, provision is made for approximately 100 persons at a sitting

XUM

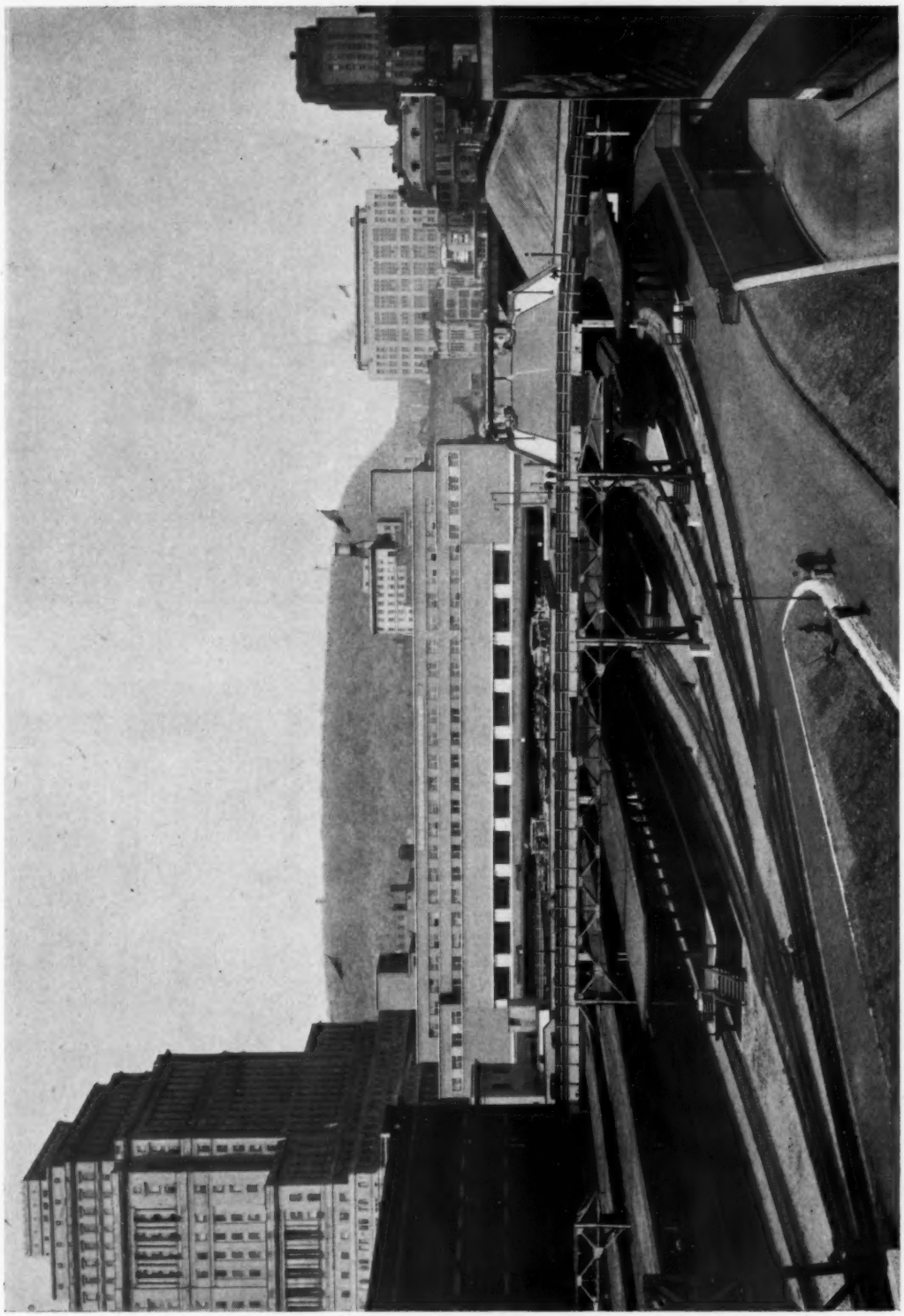
Montreal Central Station, Canadian National Railways

View from the concourse into the restaurant, which is at the extreme west end



Left: Some of the ticket office windows, which are grouped round the walls of the concourse.
Right: A passenger being booked

South End of Montreal Central Station, Canadian National Railways



South end of the new Montreal Central Station of the Canadian National Railways, with Lagauchetiere Street crossing over the ends of the platforms in the foreground, and the new East Street skirting the station buildings

RAILWAY NEWS SECTION

PERSONAL

Sir Steven Bilsland, a member of the Scottish Committee, L.M.S.R., and Major Malcolm Speir, L.M.S.R. Chief Officer for Scotland, have been appointed directors of Scottish Airways Limited.

Viscount Younger of Leckie, who is a member of the Scottish local committee of the L.M.S.R., has been appointed a director of the Railway Passengers Assurance Company.

Brigadier G. S. Harvie Watt has been appointed a King's Counsel. He is a Director of the Great Western Railway Company.

The Hon. Geoffrey C. Gibbs has been elected to the board of the Union Discount Co. of London Ltd. He is a director of the London & North Eastern Railway Company.

Mr. E. H. Gurton, formerly Western Superintendent, Department of Colonisation & Agriculture, Canadian National Railways, at Winnipeg, has been appointed European Commissioner of Colonisation in London, with headquarters at the company's offices.

We regret to record the death on June 30, at the age of 69, of Viscount Finlay, a Lord Justice of Appeal since 1938, who for a year previous to that appointment was *ex-officio* Commissioner for England on the Railway & Canal Commission.

Mr. Charles W. Stokes, Publicity Agent, London, Canadian Pacific Railway, has been elected Chairman of the Publicity Club of London.

We regret to record the death on July 1 of Mr. Robert Percy Brousson, O.B.E., M.I.Mech.E., Chairman of Scammell Lorries Limited until his retirement from that position, on account of illness, on the previous day. Mr. Brousson was General Manager of the Great Northern & City Railway from 1909 to 1913.

G.W.R. Appointments

Mr. H. H. Starr, Goods Agent, Cardiff, to be Road Transport Controller, Chief Goods Manager's Office, Paddington.

Mr. A. W. J. Dymond, Assistant to Locomotive Running Superintendent & Outdoor Assistant to Chief Mechanical Engineer, Swindon, to be Assistant to the Chief Mechanical Engineer, Swindon.

Southern Railway Appointments

Mr. A. E. Moore, Audit Accountant, retired on June 30, and the directors have decided that, as from July 1, the Audit Department be brought under the control of the Chief Accountant, Mr. R. G. Davidson, F.S.A.A.

In connection therewith the following appointments have been approved :—

Mr. J. H. Laundy, Assistant Audit Accountant, to be Audit Accountant.

Mr. T. E. Newman, Chief Clerk, Audit Department, to be Assistant to Audit Accountant.

Mr. Arthur Henry Peppercorn, O.B.E., Assistant Chief Mechanical Engineer & Mechanical Engineer, Doncaster, L.N.E.R., who is shortly to relinquish the duties of the latter post to devote his full time to that of Assistant Chief Mechanical Engineer, entered the service of the Great Northern Railway as a premium apprentice under the late Sir Nigel Gresley, at Doncaster Locomotive Works in 1905. After his apprenticeship he gained experience in the running sheds at Colwick, and later was appointed an Assistant to the District Locomotive Superintendent, first at Ardsley and then at Peterborough. During the war of 1914-18, Mr. Peppercorn served in the Chief Mechanical Engineer's Department of the Royal Engineers in France, and on demobilisation was appointed District Locomotive Superintendent, Retford. Later he went to Doncaster as Assistant in charge of the wagon shops. He was appointed Assistant to the Carriage & Wagon Superintendent at Doncaster in 1921, and on the amalgamation of the railways in 1923 became Carriage Works Manager there. In 1927 he was made Carriage & Wagon Works Manager, York; in 1933 Assistant Mechanical Engineer, Stratford; and in 1937 Locomotive Running Superintendent, Southern Area. Mr. Peppercorn became Mechanical Engineer, North Eastern Area, in June, 1938; and in June, 1941, he was appointed Assistant Chief Mechanical Engineer, and to act as Mechanical Engineer, Doncaster, with control of the Carriage & Wagon Works at York and supervision of all "outdoor" carriage and wagon work on the Great Northern section and on the Great Central section between Sheffield and London. Mr. Peppercorn has been made an Officer of the Order of the British Empire in the King's Birthday Honours List.

Mr. A. H. Peppercorn
Assistant Chief Mechanical Engineer, L.N.E.R.

Mr. A. W. Sheppey, Chief Clerk to the Divisional Superintendent, Birmingham, Great Western Railway, who, as recorded in our June 8 issue, has been appointed Assistant Divisional Superintendent, Gloucester, joined the company at Stourport-on-Severn in 1907. After periods at various stations in the division, he was transferred to the Worcester Divisional Superintendent's Office in 1915. He became Freight Train Controller on the opening of the Worcester Control in 1919, and, after experience in other sections of the Worcester Divisional Superintendent's Office, he was appointed Chief Clerk to the Divisional Superintendent, Birmingham, in April, 1942.

Colonel Humphrey Ingram Robinson, A.M.Inst.C.E., Chairman of the Chatham & District Traction Company, Hastings Tramways Company, London Coastal Coaches Limited, and Maidstone & District Motor Services Limited, and a director of the East Kent Road Car Co. Ltd. has left £159,161.

We regret to record the death on June 28, at Euston Station, of Mr. Harry Finch, Parcels Agent, Euston & St. Pancras L.M.S.R.

Mr. Harold Walter Puttick, M.I.Mech.E., M.I.E.E., Chief Electrical Engineer, North Western Railway, India, who, as recorded in our May 11 issue, is in England on leave preparatory to retirement, was born in London on June 17, 1890. He was educated at Cooper's School, and later attended the West Ham Technical Institute. He served an apprenticeship in mechanical engineering with the shipbuilding firm of Yarrow & Co. Ltd. From 1909 to 1911, Mr. Puttick was a pupil at the West Ham Corporation Generating Station; he then worked as Shift Engineer for a year. He joined Brown Boveri & Co. in 1912, and was engaged in the erection and testing of turbo-generating sets and turbo-compressors. In 1914 he went to the Charing Cross Electricity Supply Co. Ltd. as Boiler House Superintendent at Bow Power House. He then joined the Royal Naval Division, and subsequently received a commission in the Royal Garrison Artillery. He went to India in 1919, and for two years worked as Station Superintendent with the Calcutta Electric Supply Corporation Limited. In 1921, Mr. Puttick joined the East Indian Railway as an Assistant Electrical Engineer. From 1926 to 1930 he was in charge of the mechanical and electrical plant used in the erection of the Willingdon Bridge at Bally, outside Calcutta; and he presented a paper on that work which was published in the *Proceedings* of the Institution of Electrical Engineers in October, 1934. In April, 1939, Mr. Puttick became Chief Electrical Engineer on the East Indian

Mr. A. E. Robson

Appointed Assistant Works Superintendent, Locomotive Works, Derby, L.M.S.R.

Mr. A. E. Sewell

Who has relinquished the post of Goods Manager, Scottish Area, L.N.E.R.

Mr. W. P. Morgan

Assistant Divisional Superintendent, Swansea, G.W.R., 1942-45

Railway, and a year later he was transferred to the North Western Railway in the same capacity. He proceeded on leave, preparatory to retirement, on March 28 last. Mr. Puttick has been largely responsible for the development of diesel traction on the N.W.R. For a paper on that subject published in the *Proceedings* of the Institution of Mechanical Engineers last year he was awarded a Dugald Clerk Prize of £15 out of the George Stephenson Fund of that Institution. This paper was reproduced, in four parts, in *The Railway Gazette, Diesel Railway Traction Supplement*, of September, November, and December, 1944, and January, 1945.

Mr. A. E. Robson, M.B.E., A.M.I.Mech.E., Assistant Works Superintendent, Carriage & Wagon Works, Derby, L.M.S.R., who, as recorded in our June 8 issue, has been appointed Assistant Works Superintendent, Locomotive Works, Derby, was educated at Bemrose School, Derby, and Derby Technical College. He served an apprenticeship at Derby Carriage & Wagon Works, L.M.S.R., from 1928 to 1930, and was then a draughtsman in the Machinery & Plant Drawing Office until 1933. He was subsequently Inspector in charge of Internal Works Transport, also assisting the Works Superintendent in special investigations, and was afterwards Progress Assistant to Works Superintendent. From 1938 he was responsible for the development and production of all aircraft work in the company's Derby Carriage & Wagon Works, and in 1942 he was appointed Assistant Works Superintendent. Mr. Robson was made an M.B.E. in the King's Birthday Honours.

Mr. A. E. Sewell, M.Inst.T., the Railway Chairman of the Road-Rail Central Conference since its inception in February, 1939, has relinquished the post of Goods Manager, Scottish Area, L.N.E.R. In September, 1942, he was released from his Scottish duties to give his full time on behalf of the four main line railways to the work of the Conference, and this appointment has now been made permanent. Mr. Sewell was born at Whitby and educated at Ackworth School and at Bootham School, York. He joined the North Eastern Railway in 1903 and after gaining experience in various stations and departments was appointed to a post in the General Manager's Office, subsequently being placed in charge of the Parcels Section of the Passenger Manager's Office. Later he was promoted to the Chief Goods Manager's Office, and from July, 1921, to April, 1922, he was released to act as Secretary to the Committee of Goods & Mineral Managers of the "Eastern Group Companies," which was appointed to co-ordinate the arrangements of the seven component companies in anticipation of amalgamation. In 1923 Mr. Sewell was appointed Rates Assistant to the Goods Manager, North Eastern Area, L.N.E.R., and in 1928 was promoted to Assistant Goods Manager, Southern Area. He was appointed Goods Manager, Southern Scottish Area, in 1934, and on the formation of the Scottish Area on January 1, 1939, became Goods Manager for that area. He was Chairman of the Railway Clearing House Goods Managers' Conference in 1939 and 1940.

Mr. W. P. Morgan, Assistant Divisional Superintendent, Swansea, Great Western Railway, who retired on May 31, entered the company's service at Llandilo in 1894, and was engaged in various capacities in the Traffic Department. Eight years later he was transferred to the Divisional Superintendent's Office at Swansea. In 1917 he was moved to Paddington, and was attached to the Accidents & Block Telegraph Section of the Office of the Superintendent of the Line; for some years he was a member of the Railway Clearing House sub-committee engaged on the revision of the standard book of rules and regulations. Mr. Morgan was appointed Chief Clerk to the Swansea Divisional Superintendent in 1933; and in 1942 he was promoted to be Assistant Divisional Superintendent.

Mr. Gerard Young has been appointed a Director of the A.B.C. Coupler & Engineering Co. Ltd.

Mr. H. W. Puttick

Chief Electrical Engineer, N.W.R., India, 1940-45

Sir Edward Mather-Jackson has been elected a Director of the Buenos Ayres Great Southern Railway Co. Ltd. and the Buenos Ayres Western Railway Limited.

SIERRA LEONE GOVERNMENT RAILWAYS

Mr. W. H. Salkield, Assistant to General Manager (Traffic), has been appointed General Manager, Sierra Leone Government Railways, in succession to Mr. A. Allan, C.B.E., retired.

Mr. H. E. Roberts, District Passenger Manager, London, L.M.S.R., is retiring on August 21, and is to be succeeded by Mr. R. Bagwell, at present District Controller, Carlisle.

IRON & STEEL CONTROLLER

Sir John M. Duncanson, who has been released from his duties as Controller of the Iron & Steel Control of the Ministry of Supply, will be succeeded by Mr. C. R. Wheeler. Mr. Wheeler was in 1942 appointed Joint Deputy Controller for Raw Materials, Iron & Steel Control, and since July, 1943, has carried on alone. He is a Director of Guest Keen Baldwins Iron & Steel Co. Ltd., Briton Ferry Works Limited, Cribbwr Fawr Collieries Limited, Dowlais Collieries Limited, and "Twisteel" Reinforcement Limited.

Mr. Ellis Hunter (Deputy Chairman & Managing Director of Dorman, Long & Co. Ltd.) is President-Elect of the British Iron & Steel Federation, to take office in 1946, in succession to Sir Allan Macdiarmid (Chairman & Managing Director of Stewarts and Lloyds Limited).

ARGENTINE RAILWAYS BOARD CHANGES

Mr. H. N. Anderson, General Manager of the Buenos Ayres Great Southern Railway and of the Buenos Ayres Western Railway, has been elected a Director of those companies and appointed Managing Director.

Mr. W. A. Pickwoad, General Manager of the Central Argentine Railway, has been elected a Director of that company and appointed Managing Director.

Mr. M. F. Ryan, General Manager of the Buenos Ayres & Pacific Railway, has been elected a Director of that company, and appointed Managing Director.

Among awards made recently in recognition of gallant and distinguished services in Italy is that of the M.B.E. to Major (temporary) Denis Rees Stenhouse, Royal Engineers.

Sir Llewellyn T. G. Soulsby has been appointed Deputy-Chairman of Stothert & Pitt Limited, in place of Mr. E. S. Franklin, who will remain on the board. Mr. Joseph Gourlay has been elected a Director of Stothert & Pitt Limited and its associated company, Torrance & Sons Ltd. Mr. Gourlay has been Secretary of both companies since 1935, and will continue to act in that capacity.

The following announcement appears in the Second Supplement to *The London Gazette*, dated June 29, under the heading of Territorial Army—Royal Engineers: Engineer & Railway Staff Corps:—

Ernest Granter, B.Sc., M.Inst.C.E. (348929), to be Major, June 9, 1945.

Mr. J. M. Gibbon, General Publicity Agent, Canadian Pacific Railway, since 1913, retired on June 30. Mr. Gibbon joined the C.P.R. in London in 1907 from the literary staff of *The Illustrated London News*.

TRANSPORT SERVICES AND THE WAR—301

Motor Cycles without Licence

From July 1, licences to acquire new and unregistered motor cycles are no longer required.

Recreation Specials for Forces

Some 200 short-distance special trains are being run every week by the L.M.S.R. to take troops from outlying areas to nearby towns for recreational purposes.

L.M.S.R. Specials for Ex-Prisoners

Between April 10 and June 1, the L.M.S.R. conveyed to reception camps 26,592 Allied ex-prisoners arriving in this country by air and sea. Nearly all the 83 special trains required for the movement were ordered at short notice, and distances up to 400 miles had to be run.

The South Wales Ports

From September, 1939, to April, 1945, the total imports and exports of the ports of Newport, Cardiff, Penarth, Barry, Port Talbot, and Swansea amounted to more than 90 million tons, carried in 101,336 vessels. In addition, 262,604 Service personnel passed through the ports.

South Wales shared in the preparations for D-Day, and 150 vessels, carrying 89,371 tons of military stores and equipment, together with 41,630 personnel, were loaded in the short period of preparation for the actual invasion.

Army P.T. at L.N.E.R. Gymnasium

For the last five years the Northern Command School of Physical Training has been situated in the L.N.E.R. Gymnasium at York, and, in commemoration of the co-operation of the railway company with the Army, Lieut.-General Sir Edwin Morris, G.O.C.-in-C. Northern Command, recently unveiled a plaque in the gymnasium.

Some 25,000 men of all ranks have passed through the gymnasium, receiving a training which not only has benefited them now but will serve them well when they return to civilian life. The courses were designed to bring up to full A1 standard, men who were rather below the requirements but nevertheless had in them the making of good soldiers.

Mr. C. M. Jenkin Jones, Divisional General Manager, North Eastern Area, L.N.E.R., in replying to the G.O.C., said the company had welcomed the use to which it had been found possible to put the gymnasium, and thanked the Northern Command for the way in which it had looked after the gymnasium during its occupation. He mentioned specially the magnificent set of very large mural paintings which had been done by a member of the staff of the school, which would form a permanent reminder of the use to which the gymnasium had been put during these critical years. The commemoration plaque cemented the close friendship which, for many years, had existed between the Northern Command and the L.N.E.R.

The C.N.R. War Effort

Between September 1, 1939, and V-E Day, the Canadian National Railways transported more than 463 million tons of freight and 144,676,000 passengers. Train miles aggregated more than 353 million. C.N.R. dining cars served approximately 22,720,000 meals. C.N.R. hotels housed nearly four million guests and served more than 15 and a half million meals.

Freight car miles amounted to nearly nine and a half thousand million; and net ton miles to more than 186 thousand million. The principal commodities carried were manufactured goods, other than iron and steel, 118,144,250 tons; iron and steel, 13,189,000 tons; coal and coke, 78,111,250 tons; other mine products, 28,122,500 tons; wheat, 38,369,250 tons; other grains, 15,835,500 tons.

Passenger train car miles aggregated more than a thousand million. Upwards of four million troops were transported, requiring 6,540 special trains. More than 40 million war industry workers were carried in special trains.

U.S.A. Freedom from Accident in Explosive Carrying

Despite the transport by United States railways of more explosives and other dangerous materials in 1944 than ever previously, no railway servant lost his life during the year as a result of any accident arising from the carriage of explosives, and only one person was injured in this way; indeed, one only fatality of this kind has occurred in the U.S.A. during the past eleven years. There were in all seven accidents due to the transport of explosives, six of which concerned military traffic, and the seventh a consignment of fireworks; the damage done totalled $175,440. As regards other dangerous materials, the carriage of petrol caused accidents resulting in two deaths and 40 cases of injury. During 1944 there were 990 accidents arising from the carriage of such materials, including 178 due to petrol, 170 to electrical storage batteries, 138 to crude oil, 118 to acids, and 30 to naphtha. Property loss from these accidents, and the fires that followed some of them, totalled $568,283. This compared with $1,128,150 in 1943, when there were 966 accidents and six fatalities.

U.S. Railways and Low-Grade Coal

Strong action has been taken against the railways by the Solid Fuels Administration of the United States, in an endeavour to secure greater use of low-grade coal (the production of which is threatened by lack of demand) and less use of the high-grade Northern Appalachian coal. Railways are warned that unless they stop "excessive consumption" of the latter, it may be necessary to restrict their purchases, and to ration this coal according to the relative importance of the consumer's work to the national effort. To encourage the purchase of lower-grade coal, the S.F.A. has now removed the restriction that has been maintained hitherto on the stocking by the railways of coal produced in mining districts Nos. 1, 2, 3, 4 and 6, in Pennsylvania, Western Maryland, the northern part of West Virginia, and Ohio; but the prohibition still remains on the stocking of high-volatile bituminous coal mined in districts 7 and 8, in Virginia, the southern part of West Virginia, eastern Kentucky, and north-eastern Tennessee, of which only a prescribed maximum may be kept in stock. At the same time, the mines and distributing agencies in the higher-grade bituminous coal areas have been instructed to spread their deliveries evenly among both industrial consumers and the railways, so that all may have an equal opportunity of purchase. So far as concerns the railways, the qualification is made that the greater use of low-grade coal will be enforced only so far as this can be done "without loss of efficiency."

Goods-Wagon Loadings in India

Goods-wagon loadings of the Indian railways increased by 6·76 per cent. on the broad-gauge, and by 16·9 on the metre-gauge, in January 1945, compared with January, 1944.

From April, 1944, to January 31, 1945, goods-wagon loadings were higher by 3·65

per cent. on the broad-gauge, and 10·2 per cent. on the metre-gauge.

The Railways of Persia

On June 27 the Anglo-American Allied Forces handed back to a Persian Railway Commission the southern part of the Trans-Persian Railway.

German Railway Control

The German railways in the British occupation zone have been restored to German management, according to a Swiss radio announcement of June 27. Railway services in the Münster and Essen areas are again working.

Resumption of Jugoslav-Austrian Traffic

Train services between Maribor (Jugoslavia) and Graz, in the Russian-occupied southern part of Austria, were resumed on June 7. Maribor is the Jugoslav frontier station on the main line from Ljubljana to Vienna (the *ex*-Südbahn), but for about 9 miles, as far as St. Ilj, the line is still in Jugoslav territory. Spielfeld-Strass, the Austrian frontier station, is about 2½ miles further north.

Reichsbahn Property in Switzerland

A decision by the Swiss Government, published on June 11, states that, in view of the position which had arisen through Switzerland not recognising any German Government at present, the Swiss Federal Council had resolved to take into trustee administration all railway plant owned by the German Reichsbahn in Switzerland. The actual administration has been entrusted to the Swiss Federal Department of Posts & Railways.

The Basle Reichsbahn Station will be operated on a care-and-maintenance basis, and services will be worked in conjunction with the French occupation authorities beyond the border. The station marshalling yard is partly on German territory.

Basle-Strasbourg-Luxembourg Train Service

The direct train service between Basle and Luxembourg *via* Mulhouse and Strasbourg, was resumed on July 1, with a daily train in each direction. The arrival at Basle is about 5 p.m. and the departure from Basle at 7 a.m. The early extension of this service to Calais is envisaged.

The Russian Zone in Austria

Steyr, an industrial town on the River Enns, which forms the frontier between Lower and Upper Austria, has become one of the railway frontier stations between the Russian and the American-occupied zones of Austria. The town itself is actually in the American zone, but the railway station is in the Russian zone. Steyr is on the standard-gauge railway branching off at St. Valentin from the Vienna-Linz main line.

At Mauthausen, 4½ miles north of St. Valentin, the Russian demarcation line crosses the railway just east of the town.

Moscow-Berlin Express Resumed

The first Moscow-Berlin express since the beginning of the war left Moscow on June 25, according to the Moscow radio. The passengers included many generals and other officers of the Red Army, returning to their units after having participated in the Victory parade in the Red Square, Moscow, on June 24.

It may be recalled that we recorded in our issue of June 15 (page 602) that through trains were working between Moscow and Warsaw, and that the Polish railway system to the east of the River Vistula had been converted to the Russian 5-ft. gauge.

Mobile Canteen from Canada for Southern Railway

Mr. H. A. Short, Docks & Marine Manager, Southampton, on behalf of the Southern Railway, on June 22 received from Colonel E. H. Jones, Administrative Officer representing the High Commissioner for Canada, a mobile train canteen at Southampton Docks as a gift from the War Effort Committee of Wellington Canadian Council, Ontario, Canada

Left to right: Messrs. W. Thatcher (Outdoor Superintendent, Docks & Marine Department, Southampton); E. Burrow (Assistant Docks & Marine Manager, Southampton); the Mayoress of Southampton; the Mayor of Southampton; Messrs. H. A. Short (Docks & Marine Manager, Southampton); H. Lane (representing the General Secretary, N.U.R.); Colonel Jones; Mr. O. Cromwell (Chief Officer for Labour & Establishment); Mrs. Jones; Mrs. H. A. Short

A Railway Poster

Below is the text of a letter, published in *The Times* of July 2, from Mr. C. D. Notley, Managing Director, Cecil D. Notley Advertising Limited, and to which editorial reference is made on page 1 :—

"May I protest in your columns about the shocking waste of paper by the four railway companies by the exhibition of their latest poster. This poster contains the phrase, "In War and Peace—we serve" —a Union Jack, a picture of a railway train, and the initials of the four companies.

"In a quick walk round Victoria Station I counted 67 of these posters, size 20 in by 30 in. They are also to be seen in various quantities on every railway station in the kingdom. One would have no objection if the poster served any useful purpose, but to use this vase quantity of paper merely to inform a long suffering travelling public that the railways serve in war and peace, seems the height of wasteful absurdity.

"What else, may I ask, would the railways be doing? Standing in the sidings? Sleeping in goods depots and booking offices? No, of course not, they would be serving. It is their natural and only function. They could not exist if they did not serve. I might just as well state that 'In war and peace—I breathe.' It is natural for living persons to do so, but there is no need to waste the country's sparse stocks of paper to announce the obvious.

"This waste is all the more serious because I know how difficult it is to obtain even small stocks of paper to print catalogues for oversea circulation to encourage our much needed export trade."

The following reply was published in *The Times* of July 4 from Mr. G. H. Loftus Allen, Chairman, British Railways Advertising & Public Relations Committee:—

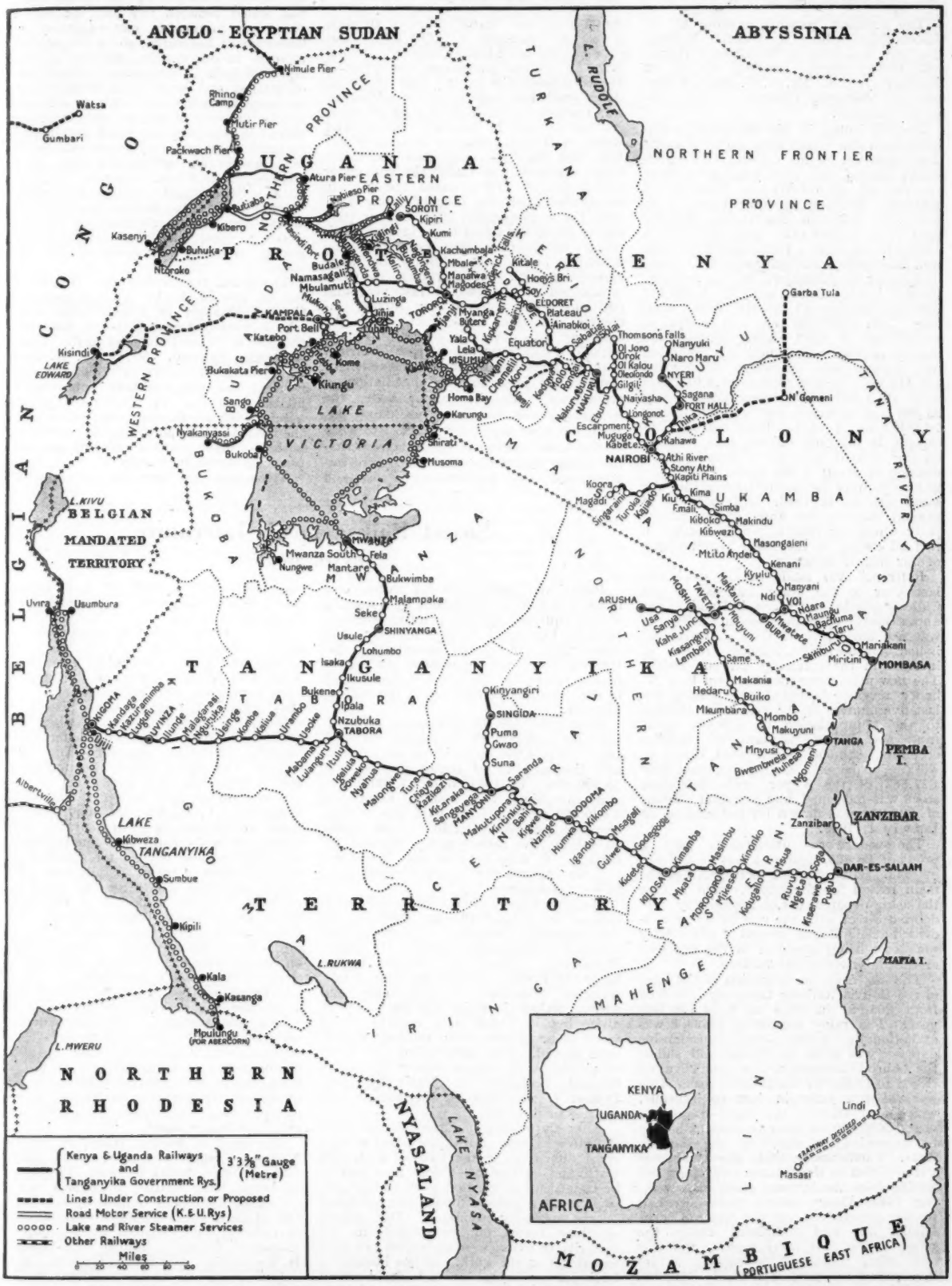
"The poster which Mr. Notley dislikes was printed for exhibition on VE Day, owing to the impossibility of obtaining flags and bunting to decorate railway stations."

Railways VE-Day Poster "So Exhilarating"

One of the inspiring sights of early VE-Day—for those of use who had to go to work as usual—was that of porters pasting up new posters at the railway stations. Our hat is most emphatically off to the railway companies for being so quick off the mark, with their "In war and peace, we serve" posters—even though the publicity department of Hastings beat them with its lighthearted 16-sheet "Hastings is getting ready for *your* invasion." But what made the VE-Day poster so exhilarating, and even heady, was the exuberance of its colouring. There, after so many drab years of those anæmic tiuts and ghastly photographs which to most Ministries have implied a public poster, floated our national flag, in the reddest of reds, the bluest of blues and the purest of whites.—*From an article by Mr. C. W. Stokes, Publicity Agent, London, Canadian Pacific Railway, in "The Investor's Chronicle."*

The Ellson Rail Joint.—In *The Sunday Dispatch* of June 24 some details were given of the use of a "new rail joint" to lessen noise. Details of this joint, which was devised by Mr. George Ellson, formerly Chief Engineer of the Southern Railway and now Consulting Engineer to that company, were given with illustrations in our June 5, 1942, issue.

Railways in East Africa



The railways of East Africa showing the Kenya & Uganda Railways, the Tanganyika Railways, and associated road and river services (see editorial note, page 2)

The Antofagasta (Chili) & Bolivia Railway Co. Ltd.

The ordinary general meeting of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C.2, on Tuesday, July 3. Mr. A. G. Hunt (Chairman & Managing Director of the company) presided.

The Chairman in his statement circulated with the report and accounts, said: The operation of the railway and waterworks during the past year gave gross receipts of £1,519,071, a decrease of £20,240. Working expenses increased by £117,952; thus the net surplus for the year was £189,451, compared with £327,643 for 1943. Passenger traffic was well maintained and gave small increases in number of passengers and in receipts. Public goods traffic totalled 1,228,440 tons and receipts £1,203,470, which compares with 1,343,786 tons and receipts of £1,256,639 in 1943. The decrease was mainly in minerals traffics; an exception was copper bars, of which we carried 239,112 tons—a new record—or 8,013 tons more than in the previous year. Only 33,900 tons of nitrate were carried, against 76,608 tons in 1943. The Officina Concepcion is the only officina now working on our system, and has a monthly production of about 2,000 tons. Up traffics generally were maintained on about the same scale as in 1943, with increases in general merchandise and cereals, principally wheat for Bolivia, and a decline in fuel oil owing to the lesser requirements of our nitrate clients.

Reference was made in my statement last year to the heavy increase in the Chilean salaries and wages bill and to our application for an increase in tariffs. It was not until July 17 that a decree was issued authorising varying rates of increase in the surcharge on our tariffs. The new rates came into force on July 27, hence revenue benefited only during the last five months of the year. In addition to the appropriation of £30,000 made from net revenue account to renewals accounts, £29,600 was debited direct to working expenses. During the past year £27,562 of the 5 per cent. debenture stock was redeemed, and a further amount of £25,214 was drawn for redemption on January 1, 1945.

The waterworks undertaking gave a profit of £5,625, against a loss of £17,576 in 1943. Sales of water increased, but the main reason for the improvement is that the using departments of the railway were debited direct with the cost of water condensed at Mejillones, instead of as formerly such cost being absorbed in the expenses of the waterworks undertaking.

The loss from the operation of the lines of the Bolivia Railway Company increased from £65,081 in 1943 to £141,546 last year. The rainy season of 1943-44 was exceptionally severe, and considerable damage was done by floods and slides; the Oruro-Cochabamba line was virtually closed to traffic for about ten weeks. This resulted not only in loss of revenue, which also affected the other lines, but nearly £30,000 on revenue account had to be expended on repairing the damage done. Furthermore, there was a substantial addition to the salaries and wages bill arising from the increase given in November, 1943. Costly defence works also had to be carried out on the Oruro-Cochabamba line and completed before the onset of the past rainy season, and this and other works of a capital nature involved an expenditure of nearly £90,000.

With regard to prospects for the current year, our traffic receipts to date show an increase of £65,430. But expenses are considerably heavier, particularly for salaries and wages, the result of the continued rise in the cost of living. After prolonged negotiations a settlement was reached on the basis of a 20 per cent. general increase in currency salaries and wages in Bolivia, effective as from March last, and from the same date our tariffs were increased. In Chile, the law under which salaries are adjusted annually in accordance with the cost of living will, with the consequential effect on our payments under the social laws, involve additional expenditure this year of some 3,000,000 pesos. In addition, the wage agreement with our workmen in Chile terminated at the end of last year and petitions were received for further increases and other concessions which the company was not in a position to meet without a compensating increase in tariffs. Failing agreement by direct discussion or through the procedure for conciliation in accordance with the labour code, the workmen went on strike on March 11, 1945, but four days later returned to work on the same conditions, having agreed that the matter should be dealt with by arbitration, which they had refused to accept in the first instance. The increase in wages and family allowances given by the award has added between five and six million pesos per annum to our expenses; the Government has authorised a 15 per cent. increase in our tariffs, effective as from April 26 last. These annual adjustments of salaries and wages with compensating increases in tariffs will result in a further rise in the cost of living, and, moreover, there is a point beyond which any increase in tariffs will cease to be productive. It is a matter for satisfaction that recent advices from Chile indicate that the Chilean Government is giving serious consideration to anti-inflation measures and intends to submit to Congress its proposals to deal with the stabilisation of prices, including transport tariffs, and wages.

The board regrets to report the loss of the services of Mr. W. A. Pickwoad, our General Manager in Bolivia since 1929, who left us in October last to take over the post of General Manager to the Central Argentine Railway. Mr. L. V. K. Duff, who joined our service in 1939 as Deputy General Manager, has been appointed to fill the vacancy. Mr. Duff recently paid a brief visit to this country, which gave the board an opportunity of discussing with him many matters affecting the company's interests in Bolivia.

The report and accounts were adopted.

Soviet Railwaymen's Literature

By D. Svetov

Books and periodicals for railwaymen in the U.S.S.R. are published by a number of well equipped railway printing works in Moscow, Leningrad, Gorky, Kharkov, and other cities. A special organisation distributes the books, magazines, and newspapers among the transport workers, even in the most remote districts of the railway network.

During the war the publication of literature for railwaymen increased considerably. Over 4,000 publications were issued, and the number of copies printed was 15,000,000. In 1944 alone, 1,000 books and pamphlets were issued, numbering 4,000,000 copies. Even with this output, however, publishing facilities were unable to satisfy the railwaymen's demand for books. It may be said that books are now an integral part of the equipment of Soviet railwaymen.

Military railway literature covered such subjects as "Camouflaging Railways for Anti-Aircraft Defence," "Anti-Aircraft Defence of Railways," and "De-mining Railways." These, and similar books, helped to perfect the war training of railwaymen. Stations in war zones had special technical circles for the study of these books, which were constantly revised in accordance with military experience gained. One publication was a revised edition of a book written by Major-General Professor A. Yanovsky, and Docent J. Stupishin on the anti-aircraft defence of railways.

After the enemy had been driven from the Soviet Union, railwaymen had to face great difficulties in the form of destroyed track and equipment. More men had to be trained for restoration work and accordingly a whole series of books was published on the necessary technique. The authors of these books on restoration, in the majority of cases, were men with practical experience in the work. In one instance a large railway bridge was rebuilt in record time and the group of railway workers concerned wrote a book on their experiences, which has proved a practical guide for bridge builders.

New workers, including many women, on the railways of the U.S.S.R. had to be trained and given a technical grounding. A series of practical guides was printed on work connected with rail transport. In 1944 alone, 78 guides were issued in editions of 69,000 copies. Among the books were rules for stationmasters, dispatchers, shunters, engineers, and electricians. Engineers and workers collaborated in compiling these books.

Soviet railwaymen devised a number of methods of facilitating the movement of trains and improving equipment. A chief conductor on the Kuibyshev line instituted a number of new devices for speeding up the movement of trains; details were published for other conductors to learn his methods. A line inspector in the Urals made up a party comprising his own family and repaired his section of line in leisure time. Subsequently he wrote a book on his experiences. Thus a new type of Soviet railwayman's literature is coming into being, written by workers whose own experience has enriched the technique of railway management. The experience of such workers, described by themselves in popular form, is summed up and analysed in the works of transport specialists. A book was published recently by a number of locomotive experts, analysing the experience of a Tula depot locomotive engineer on fuel economy.

The work of leading transport experts occupies a significant place in the literature published during the war. Prominent scientists have written important works on various branches of railway economy. One of these works is a three-volume study of railway track, written by a group of transport scientists headed by Professor B. Vedenisov. The first volume of a five-volume work on bridges, written by G. Peredery, embraces the technique and his-

tory of bridge-building. "The Railway," by L. Gumilevsky is a boy's book about the history and technique of railways designed to arouse interest in railway transport at an early age. It appeared in 1943 and won immediate popularity.

In addition to popular pamphlets, large books will be published on various branches of railway economy, particularly on the general restoration of roads, bridges, and stations. Forthcoming books will include Professor Bizukin's "Chemistry and Mechanics in Railway Economy." Detailed preparations are being made for publishing a Soviet "Railroad Encyclopedia" in many volumes. This year will also see the publication of a "Concise Railway Dictionary."

Institution of Railway Signal Engineers

"Question and Answer" Meeting

A well-attended gathering of the Institution of Railway Signal Engineers was held in London on June 27; the President, Major R. F. Morkill, occupied the chair during the ordinary formal business proceedings, in the course of which a "question and answer" meeting was held with Mr. A. Moss, member of Council, as Chairman. Some time previously the Council of the Institution had invited questions for the purpose and the Papers Committee had a very large number submitted to it. Of these, eight were selected for this meeting, but four only could be dealt with in the time available. The first and one of the most contentious related to the much debated question of splitting distant signals, on which there has long been considerable difference of opinion.

Mr. C. Carslake, Past President, thought the problem might be said to have originated with the Ditton accident on the L.N.W.R. on September 17, 1912, where a driver misread a splitting distant indication and became derailed when passing through a turnout. After that one distant only became the rule, but to-day with increased speeds, junctions were being made to allow of trains travelling at an appreciable rate over a diverging route and without splitting distants, the advantage of this was lost. Mr. F. B. Egginton discussed the problem of lights going out and altering the appearance of a group of splitting signals and also the wording of the present Ministry of Transport requirements, which, he thought, perhaps might be changed with advantage. On the former G.E.R. at one time many splitting distants at parallel junctions were removed, but considerable delays resulted and they had to be re-installed. Since grouping, however, the practice was not to provide new ones. He thought efficient light repeaters were essential to safe working with splitting distants. Mr. S. Williams considered that there was no necessity to alter the official requirements, which, if fairly interpreted, covered any case where splitting distants were necessary. It had to be remembered, too, that drivers also had made serious mistakes where there was only one distant and accidents had resulted Where trains were described under the needle block, splitting distants sometimes enabled delays arising from mistakes in the describing to be avoided. Mr. H. H. Dyer did not think that perfecting of light indicators could get rid of all risks, but with colour-light signals one could actually prove a yellow light to be showing for a green to show alongside it. Mr. A. F. Bound, Past President, emphasised that the function of signals was to maintain the traffic flowing properly. If the Traffic Department wanted splitting indications in order to achieve that, then they should be provided. Mr. B. Wagenrieder gave instances where such indications were essential as a consequence of tunnels or bridges interfering with the view of the stop signals.

Lt.-Colonel E. Woodhouse expressed the regret of Lt.-Colonel Sir Alan Mount, Chief Inspecting Officer of Railways, at being unable to be present and illustrated by diagram the circumstances of the Ditton derailment. It was felt in the Ministry that the splitting indication became less desirable as the speed on the diverging route became more restricted. The kind of traffic and the gradients also influenced the problem. They took a broadminded view of it, and were quite ready to agree to the installing of splitting indications when adequate grounds for so doing could be advanced. Mr. V. S. King spoke on the question of the lights shown by such indications and the Ministry requirements.

Mr. R. S. Griffiths, Past-President, dealt with the situation created when the layout called for distinctive splitting indications and yet where the modern junction indicator was being used with, he thought, not altogether happy results. A junction might be an equal speed junction. Mr. H. H. Dyer spoke of the arrangement of signal posts on parallel lines and at junctions and the need of distinguishing the layouts clearly. Mr. S. Williams thought that drivers, sighting a junction indicator illuminated, associated it with a speed reduction as a matter of course. Colonel E. Woodhouse stressed the fact that the existing Ministry requirements had, of course, been decided on before some equipment now being used was available.

A discussion followed on the question of establishing reciprocal electric detection between mechanical signals and points in certain layouts, in which Messrs. J. H. Currey, E. G. Brentnall, C. G. Derbyshire and others spoke, tending to favour such a course or dwelling on the expense of it. Mr. W. S. Roberts, Past President, pointed out that in mechanical signalling there was not, as had been inferred, any absolute reciprocal action; it could be accomplished electrically, of course. Mr. S. Williams thought the refinement was hardly justified and Mr. H. H. Dyer stressed that there was often a tendency to demand much more "proving" and so on when they replaced mechanical devices by something electrical. Mr. H. Alger, however, favoured this proving. Mr. A. F. Bound considered that no serious results had come from following the present simpler methods; a large amount of money could easily be spent on adding refinements that brought little real advantage in practice. Mr. P. Lomas thought the provision of the reciprocal control was the correct course, certainly in theory.

The double-wire system and the reasons for mechanical signalling practice varying, as between certain countries, were then debated. Mr. R. S. Griffiths dwelt on the course of signalling development in Great Britain and the influence exerted there by early practice, from Saxby's first work, influence which had extended to other countries. It was not to be expected that something well-established and giving good results under one set of conditions would be completely abandoned for something else, adapted to other conditions, in which the double-wire system might be almost a necessity. Overseas they often called for forms of working, such as three-position mechanical signals, never asked for here. Mr. S. Williams referred to the experience he had had with double-wire apparatus and the stretching of the wires when it was brought into service. He thought that influenced the outlook here. Mr. T. S. Lascelles spoke of the difficulty of assigning an exact reason for the difference of practice prevailing in two countries, and not only in signalling. The half-revolution type of lever and the double-wire transmission had been evolved in an attempt to satisfy requirements, to some of which railwaymen in this country had never attached much weight. Here the comparative simplicity of the first established methods had continued to appeal. In other countries the operating methods had led to a change of attitude and with it to the perfecting of the double-wire principle, with remarkable results. We were not likely to see either system replace the other everywhere. Our old established equipment, although not as scientific as the double-wire, could be operated more rapidly, an important advantage in some places.

The last question dealt with referred to the proving of correspondence between lever and motor worked points, after using the hand crank. Mr. J. H. Currey said such proving was desirable, but not always possible. Mr. H. H. Dyer instanced several conditions arising in practice where such correspondence could not be effected, desirable as it might certainly be regarded. He was strongly of the opinion that until the fault was found and rectified the points should be clipped to prevent any wrongful operation. The subject was one that might be discussed at very great length. Mr. H. G. Rutherford gave particulars of the practice on his railway and thought the handle should be placed at the points. Mr. J. F. H. Tyler spoke of the circuits and detection that should be employed and Mr. P. Whysall referred to the possibility of interrupting the circuits when the crank handle was in use.

Mr. H. H. Dyer moved a vote of thanks to Mr. A. Moss for acting as Chairman of the discussion.

The President, on resuming the chair, announced that it was proposed to hold a luncheon in London on July 20 and that on July 25 Mr. W. J. Claridge, Associate Member, would read a paper on loudspeaker and public address equipment.

Staff and Labour Matters

Engineering Wages

The National Committee of the Amalgamated Engineering Union meeting in London in the early part of June approved a new wages structure for the engineering industry which had been prepared by the Executive Council of the union. Instead of the present system of piecework rates and bonus with numerous differential payments, the new scheme provides for three main grades of workpeople, each with a guaranteed minimum weekly wage.

The suggested minima for the three main grades are :—

Labourer	£4 11s. a week with £6 1s. 4d. piecework minimum.
Skilled operators (now known as semi-skilled) ...	£5 6s. a week with £7 1s. 4d. piecework minimum.
Engineering craftsmen	£5 18s. a week with £7 17s. 4d. piecework minimum.

The National Committee passed a resolution instructing the Executive Council to make immediate application to the engineering employers for an increase to bring the basic rate for all workers in the industry into line with the new wage structure.

XUM

Notes and News

Entre Rios Railways Moratorium.—The interest moratorium on the four per cent. and five per cent. debenture stocks and the five per cent. debentures of the Entre Rios Railways has been extended by the committee for a further year to June 30, 1946.

Proposed New Line in Mexico.—It is reported that the construction of a railway line in the south-eastern part of Mexico to connect with the Yucatan peninsula is planned by the Mexican Department of Public Works & Communications. The project would involve the expenditure of $5,000,000.

Southern Railway Audit Department.—In consequence of the decision of the Southern Railway that the Audit Department be brought under the control of the Chief Accountant (see also our Personal columns), all communications for the Audit Department should be addressed to the Audit Accountant, Chief Accountant's Office (Audit Department), Southern Railway, Dorking North Station.

The Institution of Locomotive Engineers' Luncheon.—A luncheon will be held by the Institution of Locomotive Engineers at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, on July 13, at 1 p.m. A reception by the President, Mr. W. S. Graff-Baker, will commence at 12.15 p.m. Tickets, price 12s. each, may be obtained from the Secretary of the Institution; as accommodation is limited, early application is advised.

First Henry Spurrier Memorial Lecture.—The first Henry Spurrier Memorial Lecture will be delivered in London on December 10, 1945, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, by Mr. E. S. Shrapnell-Smith, C.B.E., M.Inst.T. (a former Vice-President of the Institute of Transport), who will take as his subject "Five Decades of Commercial Road Transport, with Inferences about its Future."

Crossley Motors Limited.—The preliminary statement by the directors of Crossley Motors Limited shows that the net profit for the year ended March 31, 1945, after providing for all taxation, amounted to £65,150 (£60,096). Transfers are made of £20,000 to capital reserve for depreciation of fixed assets and of £20,000 to general reserve. The dividend recommended is 15 per cent. for the year, less tax, and the carry forward is to be £33,263, as against £30,613 brought in.

French Air Traffic Nationalisation.—The decision was taken by the French Council of Ministers at the end of May that the French air traffic companies are to be nationalised. The official justification for this step is stated as "the outstanding importance air services are to embody within the framework of post-war international transport generally." In the first place this measure will affect principally Air-France, the French national air traffic company. The Air-France organisation was seized by the French Government in December, 1944, and those members of the company's board who had not left the country were arrested the same month. M. Charles Tillon, the French Air Minister, explained at the time that this action had been taken because of the close collaboration of Air-France with the Germans during the occupation. Air-France was said to have surrendered to the Germans almost the whole of its fleet and also the reserve stock of engines and spare parts. Air-France was established in April, 1933, as an amalgamation of five air companies, namely, Air-Union, C.I.D.N.A. (Compagnie Internationale de Navigation Aérienne), Farman, Air-Orient, and Aéropostale. The capital of the company was fr. 120,000,000 in 1939. The concession was for 99 years from 1933.

Institute of Traffic Administration.—The Institute of Traffic Administration is planning to hold a Summer School in Transport and traffic administration at Birmingham University from September 5 to 12. The programme is designed to be of practical help to returning Service personnel.

Berne-Gürbetal-Schwarzenburg Railway.—The Berne Cantonal Authorities have approved another merger in the Lötschberg group; that of the Berne-Schwarzenburg Railway with the Gürbetal line (Berne-Belp-Thoune). The new company will bear the title of Berne-Gürbetal-Schwarzenburg Railway.

Senior Draughtsman (Engineering) Required.—A senior draughtsman is required by the Kenya & Uganda Railways & Harbours for one tour of two to four years with prospect of permanency. Among other qualifications a knowledge of railway yard layouts and signalling would be an advantage. See our Official Notices on page 27.

E.N.V. Engineering Co. Ltd.—The report of E.N.V. Engineering Co. Ltd. shows that the profit for the year 1944 was £81,724 (£81,469) to which has to be added £36,414 brought in, making £118,138. The final dividend on the ordinary shares is 10 per cent., making 17½ per cent. for the year (same). A bonus of 8¾ per cent. (same) is also being paid on the ordinary shares. The appropriation to reserve is £15,000 (£10,000), and £35,013 is carried forward.

Stothert & Pitt Limited New Capital.—Resolutions providing for an increase in the capital of Stothert & Pitt Limited from £350,000 to £500,000 by the creation of £150,000 £1 ordinary shares were approved by the shareholders at a meeting held on June 5. The company offers £50,000 of the new shares at 42s. 6d. each in the proportion of one for every five held. Letters of right were posted on June 6, and lists closed on June 26. The remainder of the new capital will be available as and when opportunity offers for its employment.

Official Opposition to Air Traffic Nationalisation in Italy.—In a recent speech Signor Gasparotto, the Italian Minister for Air, said that air traffic was best operated by private concerns in which the State participated to the extent of 51 per cent. of the capital. The minister thought that this was the most convenient way to prevent undue political influences inevitably connected with purely State-owned concerns. He would not recommend the nationalisation of private air companies, as these, being conducted on commercial lines, knew best how to avoid red tape and working losses.

George Spencer, Moulton & Co. Ltd.—The report of George Spencer, Moulton & Co. Ltd. for the year 1944 shows that the trading profit and dividends, etc., amounted to £96,867 (£98,893) and the net profit, after allowing for directors' fees, interest, etc., was £89,319 (£91,366), to which has to be added £23,481 brought forward, making £112,800. Deductions are made of £5,300 for bank loan interest, and £60,000 (£68,000) provision for taxation and contingencies; and £10,000 (same) is transferred to reserve. The dividend on the ordinary shares for the year is 5 per cent., less tax (same) and £31,050 is carried forward. The company has satisfactory orders to fulfil, but export trade is seriously curtailed due to the need for obtaining export permits and to shipping restrictions.

Electrification of Norwegian Railways.—According to the Norwegian Telegraph Agency, the Director-General of the Norwegian State Railways announced recently that electrification of all Norway's main railway lines is to be undertaken immediately, in response to general public demand. The plan could be carried out within a few years, but special State grants

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices July 3, 1945	Prices Rise/Fall
G.W.R.				
Cons. Ord.	62¼	55	56½	—
5% Con. Pref. ...	122¼	114¾	118½	—
5% Red. Pref. (1950)	110½	104	105	—
5% Rt. Charge ...	135½	128	131¼xd	— 1
5% Cons. Guar. ...	134⅞	125	129¼xd	—
4% Deb.	118¾	112¾	114 xd	— 1
4½% Deb.	118½	114	115¼xd	— 1
4½% Deb.	124¼	119½	121¼xd	— 1
5% Deb.	137	129½	135½xd	— 1
2½% Deb.	77	73¾	76½xd	— 1
L.M.S.R.				
Ord.	34¾	27⅞	28½	—
4% Pref. (1923) ...	64¼	55	56½	+ ½
4% Pref.	81	72¼	75½	+ 1
5% Red. Pref. (1955)	105⅞	102	103½	—
4% Guar.	107½	99½	102½	+ ½
4% Deb.	111¼	104	108½	+ 1
5% Red. Deb. (1952)	111	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7⅞	7¾	+ ¼
Def. Ord.	5⅛	3¾	3¾	—
4% First Pref. ...	68¾	55¾	55½	+ ½
4% Second Pref. ...	35¾	28½	29	—
5% Red. Pref. (1955)	102¼	97¾	100½	—
4% First Guar. ...	105½	96¾	100½	—
4% Second Guar. ...	95½	88¼	94½	—
3% Deb.	88¼	80¾	87	+ ¼
4% Deb.	110½	103½	107	—
5% Red. Deb. (1947)	105¾	101¼	101½	—
4½% Sinking Fund Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	74	+ 1
Def. Ord.	26¾	23	24	+ ¼
5% Pref.	122	113½	115½	—
5% Red. Pref. (1964)	117½	112½	114½	—
5% Guar. Pref. ...	134	125½	129½	—
5% Red. Guar. Pref. (1957)	115¾	112½	115½	—
4% Deb.	118	110	113	—
5% Deb.	135½	127	134½	—
4% Red. Deb. (1962-67)	111½	107½	109½	—
4% Red. Deb. (1970-80)	112	108¾	110½	—
FORTH BRIDGE				
4% Deb.	107	103	104	—
4% Guar.	106½	102	104	—
L.P.T.B.				
4½% "A"	125	119	120½	—
5% "A"	133½	128	131½	—
3% Guar. (1967-72)...	99½	98	99	—
5% "B"	124½	118⅞	120½	—
"C"	72¾	64½	67½	—
MERSEY				
Ord.	35¾	33	36½	—
3% Perp. Pref. ...	72	66	71	—
4% Perp. Deb. ...	105	103	106	—
3% Perp. Deb. ...	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	6½	—
G. NORTHERN				
Ord.	33¾	19	26½	+ ⅜
Pref.	49	37	44	+ ⅜
Guar....	70	57⅞	68½	+ ½
Deb.	90½	81½	89½	—
IRISH TRANSPORT				
Common	—	—	75	—
3% Deb.	—	—	100½	—

* Latest available quotation

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50 inclusive unless he is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

A WELL-KNOWN and old-established firm of Engineers and Merchants, representing a group of leading British manufacturers in India, have a vacancy on their staff for service in that country. Applicants—who should not be above 25 years of age—are invited to submit brief details of schooling, training and subsequent career to Box No. 296, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

OVERSEAS EMPLOYMENT SENIOR DRAUGHTSMAN (ENGINEERING), required by the Kenya and Uganda Railways and Harbours for one tour of 2 to 4 years, with prospect of permanency. Salary £500 a year rising to £600 a year, plus war bonus at present about £26 for a single man and £81 for a married man, with additional allowances for children. Free passages and quarters. Candidates must have a sound knowledge of engineering works and building construction and of the design of structural steelwork and reinforced concrete structures. They should be capable of taking out quantities and preparing estimates and have had experience in the office of a chartered civil engineer. A knowledge of railway yard layouts and signalling or of architecture would be an advantage.

Written applications (no interviews), giving the following essential details: (1) full name; (2) date of birth; (3) qualifications and experience; (4) name and address of present employers; (5) details of present work should be sent to the Secretary, Overseas Manpower Committee (Ref. 1599), Ministry of Labour and National Service, York House, Kingsway, London, W.C.2. Applications cannot be acknowledged. (19.6. A.1.)

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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would be needed which would be made available soon, even before the election of a new Parliament. It is reported that work on the first stretch, the Bergen-Voss line (about 60 miles) will start immediately.

Agreed Charges. — Applications have been made to the Railway Rates Tribunal for the approval of 43 further agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933. Notices of objection should be filed by July 10.

Buenos Ayres & Pacific Moratorium. —The Stockholders' Committee of the Buenos Ayres & Pacific Railway Co. Ltd. has extended for one year from June 30, 1945, the moratorium in respect of the interest payable on the 4½ per cent. consolidated debenture stock, and the 5 per cent. (1912) debenture stock of the company. The extension of the moratorium also applies to the 5 per cent. debenture stock and the 6 per cent. guaranteed preference stock of the Argentine Great Western Railway Co. Ltd., and to the 4½ per cent. guaranteed stock of the Villa Maria & Rufino Railway Co. Ltd.

Dunlop War Exhibition.—The war work of the Dunlop Rubber Co. Ltd. is shown at an exhibition opened on July 2 (closing July 13) by the Chairman, Sir George Beharrell, at the Royal Empire Society's headquarters, Northumberland Avenue, London, W.C.2. More than 400 Dunlop war products from the company's 30 factories in Great Britain are on show, supplemented by photographs and scale models. In the course of his opening speech, Sir George Beharrell stated that the Dunlop Rubber Co. Ltd. had produced 1,000,000 tank tyres. The exhibits cover every aspect of the Dunlop rubber industry as applied to the war effort—from R.A.F. rescue dinghies to rubber tubing for blood-transfusion apparatus. In addition to rubber products, the exhibition covers a number of mechanical devices, such as the Dunlop electro-pneumatic gun-firing system.

Proposed Changes in Argentine Customs Laws.—The Argentine Ministry of Finance has submitted to the President of the Republic a draft Decree, whereby it is proposed that certain modifications be effected in Law No. 11,281, which regulates the powers of the Government in the matter of customs duties. It is proposed to create a customs duties and valuation board, which would act in an advisory capacity to the Government. The Government would be granted authority to modify customs duties to the extent of raising or lowering them by not more than half, and to place duties on articles hitherto not subject to them, up to 20 per cent. of their value in storage, as well as to carry out various other modifications. The Government would be obliged to consult the customs duties and valuation board before making any changes in the customs regime; once made, such changes would remain in force for not less than one year. The board would be responsible for studying all pertinent subjects and collecting information.

Ribble Motor Services Limited.—For the year ended March 31, 1945, Ribble Motor Services Limited, which is controlled jointly by the L.M.S.R. and B.E.T. Omnibus Services Limited, secured a total revenue of £2,035,696 (£1,951,546). After deducting all expenses, including £195,000 (£189,000) for reserve for depreciation and renewals, and £300,875 (£368,456) provision for taxation, there remains a balance of £132,772 (£133,672) which, added to £78,694 brought forward, makes a total of £211,466 (£211,694). The preference dividend absorbs £13,000, and the dividend of 10 per cent. for the year on the ordinary shares again takes £120,000, leaving £78,466 to be carried forward.

Permutit Co. Ltd.—Mr. J. W. Murray, Chairman of the Permutit Co. Ltd., in the course of his statement circulated with the report and accounts for the year 1944, said that the available balance was £46,291. The domestic department, due to Government departments, was inactive during the year. The industrial department continued active throughout 1944 and the orders received during the first four months of the current year exceeded those received during the corresponding period of last year. The company had played its part in the supply of specialised water treatment apparatus to the Armed Forces and war industries. Perhaps the most outstanding achievement had been the development and manufacture of the Permutit Sea Water De-Salting Apparatus for producing drinking water from sea water without the use of heat. This "magic water box" for airmen forced down into the sea was about the size of a half-pound packet of tea.

Government Surplus Machine Tools.—The Machine Tool Control has introduced further facilities for intending purchasers of Government surplus machine tools. Offers to purchase machines in the M.T.C. stock records may be lodged in person or posted to the nearest disposal centre, and the intending purchaser will be informed immediately if the machine is no longer available. Temporary disposal centres are being established at certain large factories where many surplus tools are available for sale, and the location of these will be notified from time to time. Offers for such tools will be received at the factories as well as at the permanent disposal centres. In addition, arrangements have been introduced to ensure that the latest stock changes are communicated between headquarters and the centres by telephone several times each day. These facilities will assist purchasers and merchants to ascertain promptly the prospects of obtaining the particular machines in which they are interested, and of selecting alternative machines without delay.

Gift Wireless Sets from the U.S.A.—Mr. Arthur L. Stead, London Correspondent of the *Baltimore & Ohio Railroad Magazine*, was presented recently with one of the wireless receiving sets which were given by Baltimore & Ohio Railroad employees to their British railway colleagues working throughout the Nazi air raids. On Mr. Stead's suggestion, after consultation with British railway managers and employees, some 500 wireless receivers were given for use in railway locomotive sheds, rest rooms, canteens, and Home Guard centres. Presentation of the radio was arranged through Mr. R. M. Van Sant, Director of Public Relations, Baltimore & Ohio Railroad; Mr. T. D. Slattery, of Associated British & Irish Railways, New York; and Mr. G. H. Loftus Allen, Advertising & Publicity Officer, L.M.S.R. The set carries a bronze tablet inscribed as follows: "Presented to Arthur L. Stead by the employees of the Baltimore & Ohio Railroad in appreciation of his effective work in promoting understanding and friendship between British and American railway workers."

Contracts and Tenders

Consequent upon the cessation of hostilities in Europe, the sales, service, and contracts staff of the variable speed gear department of Vickers-Armstrongs Limited has returned to London. Communications should be addressed: Vickers-Armstrongs Limited, Variable Speed Gear Department, Vickers House, Broadway, Westminster, S.W.1. Telegraphic address: Varispeed, Sowest, London. Telephone number: Abbey 7777.

Below is a list of orders placed recently by the Egyptian State Railways:—

Philips Lamps Limited: Electric lamps.
Morgan Crucible Co. Ltd.: Crucibles, etc.
Thorn & Hoddle Limited: Lighting material.
Robert Hyde & Son Ltd.: Buffer shells.
Siebe Gorman & Co. Ltd.: Respirator.
Buck & Hickman Limited: Screws and machine closers.
Staveley Coal & Iron Co. Ltd.: Pipes, bends, etc.
Easterbrook Allcard & Co. Ltd.: Machine dies.

Railway Stock Market

Election week showed continued firmness in stock markets with British Funds strengthening on reinvestment demand arising from large interest and other disbursements, 3½ per cent. War Loan rising to 104 1/16 and Local Loans to 95⅝. Confidence was indicated by further gains in leading industrial shares, such as Imperial Chemical, Dunlop Rubber, Courtaulds, and among "political" securities, Home Rails were again higher, colliery shares well maintained, and electricity supply shares rallied. Business generally was small, but with very little selling, prices responded readily to moderate demand.

Better demand for home rails was attributed to confidence as to the outcome of the Election and lessened fears of nationalisation; the pending interim dividends have tended to draw further attention to the large yields on junior stocks and also some of the preference stocks. Southern preferred, of course, can be regarded as carrying the 2½ per cent. interim payment, and this stock, together with L.M.S.R. senior and 1923 preferences, and also L.N.E.R. first preference, give yields which must be considered as generous, bearing in mind their investment merits. If the railways receive just treatment in the post-war organisation of transport, these stocks should remain well covered as to dividend. Indeed, the junior stocks will be expected to keep in the dividend list, but their dividends, of course, will fluctuate from year to year, in accordance with trade conditions and other factors. It does not appear that there can be any early decision as to the post-war organisation of transport, and meanwhile it seems home railway junior stocks must be expected to move fairly closely with the general trend of markets. Nevertheless, it is hoped that as soon as possible there will be a general statement as to the Government's plans in regard to transport and the railways. Prevailing views are that, granted a favourable outcome to the General Election, stock markets are likely to record a general advance, in which home rails would doubtless participate satisfactorily.

Argentine rails have been less active, and have lost part of the gains recorded a week ago. The tendency is to await developments arising from Sir Montague Eddy's visit to the Argentine. Central Argentine 5 per cent. debentures received attention on the view that they are undervalued, bearing in mind the interest arrears outstanding. In other directions, San Paulo ordinary were a good feature on talk of a higher dividend, and United of Havana 1906 debentures were easier, awaiting the capital reorganisation. French Rails moved up further, still under the influence of decision to resume interest payments and clear off all arrears. There has been talk that a loan may be raised for reconstruction of the French railways, but confirmation is lacking at this stage. Canadian Pacifics relapsed on the view that after all there may be no early adjustment of the value of the Canadian dollar. Elsewhere, Antofagasta ordinary and preference stocks reacted on the statement that in regard to the current year's results of the railway, expenses are considerably heavier.

Compared with a week ago, Great Western rose further from 54 to 56, and the 5 per cent. preference from 117½ to 118½; the 4 per cent. debentures were 114xd. L.M.S.R. improved further to 28⅜, compared with 28¼ a week ago, the senior preference, however, eased to 75¼, but the 1923 preference was ¼ better at 56½. L.N.E.R. second preference was 29⅛, compared with 29 a week ago, the first preference 55¼, compared with 55, and the first guaranteed strengthened to 100½. Southern deferred improved further on balance from 23¾ to 23⅞; and the preferred was a point higher at 73¾; the 5 per cent. preference also improved to 116. London Transport "C" was fractionally higher at 67¼.

Among Argentine rails, Buenos Ayres Great Southern receded to 11¾, against 12 a week ago, the 5 per cent. preference was 26½, against 27¾, and the 4 per cent. debentures unchanged at 63½. Buenos Ayres Western ordinary moved fractionally lower at 11¾, but the 4½ per cent. preference remained at 28. Central Argentine 5 per cent. debentures rose further from 65½ to 66½. Elsewhere, San Paulo jumped from 52 to 56. United of Havana 1906 debentures eased to 24¾. Canadian Pacifics were 21½, as against 22⅜ a week ago. Among French Rail bonds, Nord rose further from 121½ to 125½ and Midi from 103½ to 106.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1943/4	No. of Weeks	Aggregate traffics to date: Totals 1944/5	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: July 3, 1945	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	24.6.45	31,490	+ 1,510	25	770,500	705,250	+ 65,250	Ord. Stk.	13½	9½	10	Nil
	Argentine North Eastern ...	753	23.6.45	18,660	+ 3,075	51	944,181	794,306	+ 149,875	,,	6¾	4½	9	Nil
	Bolivar	174	May, 1945	4,670	— 789	21	25,635	26,518	— 883	6 p.c. Deb.	18¾	7½	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19 3/16	15	24	Nil
	Buenos Ayres & Pacific ...	2,773	23.6.45	124,125	+ 21,563	51	6,941,312	5,816,687	+ 1,124,625	Ord. Stk.	7 11/16	3¾	5½	Nil
	Buenos Ayres Great Southern	5,080	23.6.45	184,437	+ 45,687	51	10,597,187	9,411,312	+ 1,185,875	Ord. Stk.	14¼	9½	11¾	Nil
	Buenos Ayres Western ...	1,924	23.6.45	69,500	— 2,687	51	3,611,187	3,072,125	+ 539,062	,,	13¾	9½	11¾	Nil
	Central Argentine	3,700	23.6.45	167,456	+ 7,156	51	9,190,770	8,248,294	+ 942,476	,,	10¾	6¾	8¼	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4¾	3	4½	Nil
	Cent. Uruguay of M. Video	972	23.6.45	38 963	+ 2,550	51	1,815,886	1,775,823	+ 40,063	Ord. Stk.	5¾	4	6	Nil
	Costa Rica	262	May, 1945	27,205	+ 680	38	259,151	251,679	+ 7,472	Stk.	17½	14½	15	Nil
	Dorada	70	May, 1945	35,000	+ 9,256	22	148,595	123.083	+ 25,512	1 Mt. Deb.	101	101	101½	£5 18/3
	Entre Rios	808	23.6.45	25,200	+ 4,013	51	1,276.662	1,056.600	+ 220,062	Ord. Stk.	6¼	4½	5½	Nil
	Great Western of Brazil ...	1,030	23.6.45	23,700	+ 2,800	25	633,800	554,000	+ 79,800	Ord. Sh.	38/-	23/3	27/6	Nil
	International of Cl. Amer. ...	794	May, 1945	$231,658	+ $54,597	22	$1,047,719	$1,092.563	— $44,844	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	¼	1	Nil
	La Guaira & Caracas... ...	22¼	May, 1945	7,407	— 1,300	21	29,823	38,153	— 8,330	5 p.c. Deb.	88	79	78½	£6 7/5
	Leopoldina	1,918	23.6.45	60,737	+ 17,123	25	1,170,435	1,138,759	+ 31,676	Ord. Stk.	5¾	4¼	4	Nil
	Mexican	483	21.6.45	ps. 585,400	+ ps. 249,900	25	ps.14,855,500	ps. 10,368.000	+ ps. 4,487,500	Ord. Stk.	¾	¼	2	Nil
	Midland Uruguay	319	May, 1945	19,738	+ 3,567	48	195,444	187,809	+ 7,635	—	—	—	—	—
	Nitrate	382	15.6.45	8,994	+ 3,413	23	85,144	87,451	— 2,307	Ord. Sh.	75/10	65/10	70/-	£3 11/5
	Paraguay Central	274	22.6.45	£65,095	+ £10,307	51	£3,111,357	£2,685,484	+ £425,873	Pr. Li. Stk.	79½	68	77xd	£7 14/10
	Peruvian Corporation ...	1,059	May, 1945	133,173	+ 9,672	48	1,429,695	1,209,296	+ 220,399	Pref.	9	10	9¾	Nil
	Salvador	100	May, 1945	c 112,200	+ c 18,000	48	c 1,420,000	c 1,404,000	+ c 16,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57¾	46	56	£3 11/5
	Taltal	156	May, 1945	6,625	+ 1,485	47	32.905	59,800	— 26,895	Ord. Sh.	21/3	13/9	13/9	Nil
	United of Havana	1,301	23.6.45	51,884	+ 131	51	2,759,621	2,953,406	— 193,785	Ord. Stk.	4	2¼	2	Nil
	Uruguay Northern	73	May, 1945	1,830	— 151	48	18,089	16,412	+ 1,677	—	—	—	—	—
Canada	Canadian Pacific	17,028	21.6.45	1,270,600	+ 57,400	24	29,097,200	29,111,200	— 14,000	Ord. Stk.	17¾	13 11/16	21½	£4 13/-
India	Barsi Light	202	Apr., 1945	31,072	+ 2,640	4	31,072	28,432	+ 2,640	Ord. Stk.	129½	97½	129½	£3 9 6
Various	Egyptian Delta	607	20.5.45	15,100	— 3,290	7	84,641	94,755	— 10,114	Prf. Sh.	7 13/16	5¼	6½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	57/6	Nil
	Midland of W. Australia ...	277	Apr., 1945	16,473	— 4,148	44	189,748	291,154	— 101,406	Inc. Deb.	101½	99¼	95¼	£4 3 9
	Nigeria	1,900	28.4.45	285.931	+ 16.598	4	—	—	—	—	—	—	—	—
	South Africa	13,301	5.5.45	1,000.920	+ 108.249	5	4,962,074	4,276,017	+ 686,057	—	—	—	—	—
	Victoria	4,774	Feb., 1945	1,252,999	— 43,035	4	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ½. Argentine traffics are given in sterling calculated @ 16 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee